

June 2003

**Alameda County Employees' Retirement
Association**

Actuarial Valuation Report as of December 31, 2002

MERCER

Human Resource Consulting

MERCER

Human Resource Consulting

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June 11, 2003

Board of Retirement
Alameda County Employees' Retirement Association
475 - 14th Street, Suite 1000
Oakland, CA 94612

Dear Members of the Board:

We are pleased to present the actuarial valuation report for the Alameda County Employees' Retirement Association prepared as of December 31, 2002 by Mercer Human Resource Consulting. The report includes:

- (1) A determination of the recommended employer contribution rates. These rates are calculated to be effective for the 2003/2004 fiscal year;
- (2) A determination of the recommended member contribution rates, also to be effective for the 2003/2004 fiscal year;
- (3) A determination of the funded status as of December 31, 2002; and
- (4) Financial reporting and disclosure information pursuant to applicable accounting standards.

This report conforms to the requirements of the governing state and local statutes, accounting rules, and generally accepted actuarial principles and practices.

This report reflects the estimated impact on funding status and contribution rates of the Retirement Board's expansion of the pay items includable in Earnable Compensation in response to the 1997 California Supreme Court decision in the *Ventura County Deputy Sheriff's Association vs. Board of Retirement, Ventura County Employees' Retirement Association*, including retroactive benefit payments.

Retirement benefits for those who are expected to retire after December 31, 2002 include an estimate for the terminal and non-terminal pay elements expected to be paid during members' final average compensation period.

In the December 2002 Board meeting, the Board adopted Mercer's recommendation to:

- Put an 80% - 120% market value corridor to prevent the actuarial (or smoothed) valuation asset from deviating too significantly from the actual market value. Please note that losses over 120% of market value were not credited to the Employer, Member and Supplemental Retiree Benefit Reserves but they were accumulated in the Contingency Reserve Account. As a result, there was a negative balance of \$108.3 million in that account as of December 31, 2002.

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Board of Retirement

- Recognize the negative balance in the Contingency Reserve as a deficit of the Association when determining the amount of valuation asset available to defray the actuarial accrued liability of the Association.

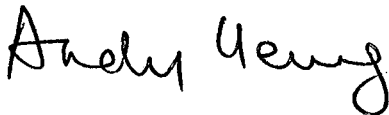
This report includes the following Mercer recommended assumption and method changes adopted by the Board in its April and May 2003 meetings:

- Reduction in the investment return assumption from 8.25% to 8.00%;
- Increase in total salary scale assumptions from 5.6% to 5.9% calculated in our November 30, 2001 triennial experience analysis;
- Higher terminal pay assumptions calculated in this year's review of unused vacation time cashed out by members who recently retired from the Association; and
- Offset the prior excess investment returns on the POB carried from 2001 with the investment losses during 2002. The resultant net investment loss plus the Association's other Unfunded Actuarial Accrued Liabilities are then amortized over a period of 30 years.

Note that the higher terminal pay assumptions were applied in the development of both the employer and member rates.

The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion rendered herein.

Sincerely,



Andy Yeung, ASA, EA, MAAA



Marcia L. Chapman, FSA, EA, MAAA

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ACTUARIAL CERTIFICATION

Actuarial Certification

The annual actuarial valuation required for the Alameda County Employees' Retirement Association has been prepared as of December 31, 2002 by Mercer Human Resource Consulting. In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to determine a sound value for the Association's assets, liability and future contribution requirements. Our calculations are based upon member data, as of November 30, 2002 provided to us by the Association's staff and financial information as of December 31, 2002 provided by the unaudited report.

Data Adjustment

The service data for active members was projected from November 30, 2002 to December 31, 2002. The salaries used in this valuation, for continuing actives, were based on salaries from last year's valuation but increased by a uniform 5.6% and 12.8% for General and Safety members, respectively.

We have estimated the salaries for continuing active members instead of using the actual 2002 salaries reported by the Association because there were very significant salary increases reported in 2002 by the Association for those members. Upon further investigation, the Association concluded that those salary increases were due in large part to one-time retroactive pay adjustments that were given to those members during 2002. When we requested additional data to adjust individual member salaries for the one-time retroactive pay adjustments, the employer informed us that they were only able to identify the retroactive pay adjustment paid in the aggregate to the General and Safety membership groups instead of to each individual member.

We subtracted the aggregate retroactive pay adjustment for Safety members from the total safety salary increases to estimate the permanent on-going salary increase percentage for Safety members. The resultant aggregate salary increase percentage of 12.8% was reasonable when compared with the across-the-board salary increases that were granted to members of the Safety bargaining groups. However, when we repeated that process for General members, we were not able to substantiate the resultant increase (about 12.6%) with across-the-board salary increases that were granted to members of the different General bargaining units.

The employer assured us that they will work with the Association and Mercer to collect more accurate data and to eliminate the problem posed by retroactive pay adjustments before the next valuation. We believe in determining salary for General members, it is not unreasonable to apply an average 5.6% increase in 2001-2002 salary anticipated by the Retirement Board's salary increase assumption for the last plan year in estimating the valuation salary for 2002.

For members who joined the Association after the last valuation, as of December 31, 2001, we have used their salaries reported for 2002 with the above 12.6% and 12.8% adjustments for retroactive pay for General and Safety members, respectively. We do not believe the pay adjustments for the new members would have a material impact on the liabilities of the Association.

Determining Employer's Contribution and Funding Status

The contribution requirements are determined as a percentage of payroll. The funding objective of the plan is to determine employer rates that provide for both normal cost and either a contribution to amortize the unfunded actuarial accrued liability or a credit when actuarial assets exceed the actuarial accrued liability. The amortization period is 30 years as of December 31, 2002; as set by the Board of Retirement. The unfunded actuarial accrued liability contribution is calculated to remain level as a percentage of future payroll (including projected payroll for future members). Payments will increase at the assumed rate of inflation, which is 4.50% per year.

Contribution levels are recommended by the Actuary and adopted by the Board each year. The ratio of Actuarial Value of Assets to Actuarial Accrued Liabilities decreased from 105.8% to 92.5% during the year as a result of asset returns less than expected and the reduction in the interest rate assumption.

There were no plan changes since our last valuation, as of December 31, 2001.

In the December 2002 Board meeting, the Board adopted the following Mercer recommended assumption changes:

1. Asset Valuation Method

An 80%-120% market value corridor was established to avoid the actuarial (or smoothed) valuation asset to deviate too significantly from the actual market value.

The losses over 120% of market value were not credited to the Employer, Member and Supplemental Retiree Benefit Reserves but they were accumulated in the Contingency Reserve Account. As a result, there was a negative balance of \$108.3 million in that account as of December 31, 2002.

2. Recognition of Negative Balance in the Contingency Reserve

In determining employer contribution rates, the deficit in the Contingency Reserve has been taken into account in determining how much assets are available in the valuation to defray the actuarial accrued liability of the Association as of December 31, 2002.

At the April and May 2003 Board meetings, the Board adopted the following Mercer recommended assumption changes:

1. Investment Return Assumption

A decrease in the investment return assumption from 8.25% to 8.00%. This is primarily due to a decrease in the expected long-term net rate of return from the asset classes that ACERA invests in.

2. Salary Increase

An increase in the current average annual salary increase assumption of 5.6% to 5.9%. The analysis to support the higher salary increase assumption was carried out as part of our November 30, 2001 triennial experience analysis. The implementation of the recommendation was delayed until this valuation to allow the employer sufficient time to validate the data used in the process.

3. Terminal Pay

Based on a study of terminal pay data from 192 retirees who received a service retirement benefit between July 2001 and September 2002, we observed that there was a change in behavior among retired members to bank a larger proportion of their unused vacation, as part of their retirement planning, and converted those vacation at retirement to boost their final average earnings and hence received a higher retirement benefit.

We have reflected the higher terminal data in this calculation. Because of this fundamental change in behavior, the Retirement Board's legal counsel also concluded that it is appropriate to anticipate the conversion of terminal pay in setting member basic contribution rates. We have adjusted the member basic contribution rates in this valuation.

4. Amortization Period for Excess Investment Returns on the County's Pension Obligation Bonds

The entire excess investment returns carried from 2001 have been fully offset because of continued negative market returns during 2002. While the proceeds from the original POBs are still available to offset the County's actuarial accrued liabilities, the County will no longer be able to use the excess investment returns to offset its ongoing Normal Cost contribution rate. The excess investment returns carried from 2001 and this year's investment losses have to be combined and amortized as one amount, as GASB 25 and 27 do not allow those two amounts to be amortized separately when the funding ratio of the Association drops below 100 percent. The resultant net investment loss plus the Association's other Unfunded Actuarial Accrued Liability is now being amortized over a period of 30 years.

In our opinion, the combined operation of the assumptions and methods applied in this valuation, fairly represent past and anticipated future experience of the Association and meet the parameters required by GASB Statement 25.

A list of the supporting schedules we prepared for inclusion in the actuarial, statistical and financial sections of the Association's CAFR report is provided below.

1. Schedule of Active Member Valuation Data
2. Retirees and Beneficiaries Added to and Removed From Retiree Payroll
3. Solvency Test

4. Actuarial Analysis of Financial Experience
5. Schedule of Average Benefit Payments for Retirees and Beneficiaries
6. Schedule of Funding Progress
7. Schedule of Retiree Members by Type of Benefit

Future contribution requirements may differ from those determined in the valuation because of:

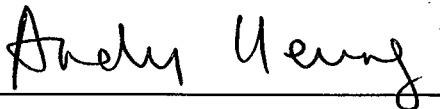
- Differences between actual experience and anticipated experience;
- Changes in actuarial assumptions or methods;
- Changes in statutory provisions; and
- Differences between the contribution rates determined by the valuation and those adopted by the Board.

This report reflects the current estimated impact on funding status and contribution rates of the Retirement Board's expansion of the pay items includable in Earnable Compensation in response to the 1997 California Supreme Court decision in *the Ventura County Deputy Sheriff's Association vs. Board of Retirement, Ventura County Employees' Retirement Association*, including retroactive benefit payments.

Retirement benefits for members who are expected to retire after December 31, 2002 include an estimate for the terminal pay elements expected to be paid during members' final average compensation period.

The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion rendered herein.

Mercer Human Resource Consulting, Inc.



Andy Yeung, ASA, EA, MAAA



Marcia L. Chapman, FSA, EA, MAAA

June 11, 2003

Date

June 11, 2003

Date

**BOARD MEMBER SUMMARY OF
VALUATION RESULTS**

Summary of Recommendations

Employer Contribution Rates	December 31, 2001 *	December 31, 2000 *, **	Increase/(Decrease)
Normal Cost Rate:	9.35%	9.75%	(0.40%)
Rate of Contribution to Unfunded Actuarial Accrued Liability:	-4.84%	-5.67%	0.83%
Total Employer Rate:	4.51%	4.08%	0.43%
Estimated Annual Amount:	\$26,647,000	\$24,081,000	\$2,566,000

Member Contribution Rates	December 31, 2001 *	December 31, 2000 *	Increase/(Decrease)
General Members (Tier 1)***			
25	8.77%	9.00%	(0.23%)
35	9.79%	10.04%	(0.25%)
45	11.11%	11.40%	(0.29%)
General Members (Tier 2)***			
25	6.18%	6.20%	(0.02%)
35	6.90%	6.92%	(0.02%)
45	7.83%	7.86%	(0.03%)
Safety Members (Tier 1)***			
21	10.62%	10.65%	(0.03%)
25	11.03%	11.07%	(0.04%)
30	11.69%	11.73%	(0.04%)
Safety Members (Tier 2)***			
21	8.91%	8.87%	0.04%
25	9.27%	9.21%	0.06%
30	9.81%	9.76%	0.05%
Estimated Annual Amount	\$45,462,000	\$45,755,000	(\$293,000)

Actuarial Assumptions	December 31, 2001	December 31, 2000	
Annual Inflation Rate:	4.50%	4.50%	0.00%
Annual Investment Return:	8.25%	8.25%	0.00%
Average Annual Salary Increases:	5.60%	5.60%	0.00%

Other assumptions are based upon the November 30, 2001 experience analysis

* Result based on assumptions adopted by the Board (8.25% interest, 4.50% inflation and 1.10% average merit and longevity assumptions) and December 31, 2001 payroll.

** Average employer contribution rates have been recalculated based on December 31, 2001 payroll

*** Contributions for the first \$161 of bi-weekly pay are based on 2/3 of the above rates.

Summary of Significant Actuarial Statistics and Measures

	<u>December 31, 2001</u>	<u>December 31, 2000</u>	Increase/(Decrease)
Association Membership			
<i>Active Members</i>			
1. Number of Members	10,974	10,456	5.0%
2. Total Active Payroll	\$590,392,000	\$532,305,000	10.9%
3. Average Monthly Salary	\$4,483	\$4,242	5.7%
<i>Retired Members</i>			
1. Number of Members:			
Service Retirement	4,443	4,352	2.1%
Disability Retirement	511	477	7.1%
Beneficiaries	913	870	4.9%
2. Total Retired Payroll	\$124,086,000	\$115,260,000	7.7%
3. Average Monthly Pension	\$1,762	\$1,685	4.6%
<i>Inactive Vested Members</i>			
1. Number of Members	1,025	975	5.1%
Asset Values (Net)			
Market Value	\$3,517,082,000	\$3,734,794,000	(5.8%)
Return on Market Value	-3.49%	-0.21%	
Actuarial Valuation Assets	\$3,321,794,000	\$3,169,178,000	4.8%
Return on Actuarial Valuation Assets	7.11%	8.48%	
Liability Values			
Actuarial Accrued Liability	\$3,140,216,000	\$2,936,631,000	6.9%
Unfunded Actuarial Accrued Liability (UAAL)	(\$181,578,000)	(\$232,547,000)	21.9%
Funding Ratios			
GASB No. 25	105.8%	107.9%	(2.1%)

Explanation of Changes in Actuarial Values

Employer Contribution Rate

The average employer contribution rate increased from 4.08% to 4.52% due to the following causes:

Change in Employer's Rate

<u>Description</u>	<u>% of Payroll</u>	<u>Dollar Impact</u>
December 31, 2000 Employer Rate	4.08%	\$24,081,000
<i><u>Before Change in Actuarial Assumptions</u></i>		
Investment return less than expected	0.83%	\$4,882,000
Salary increase more than expected	0.22%	\$1,299,000
Dilution of Rate Credit from Surplus Assets	0.28%	\$1,680,000
Data Changes to Continuance Percent Reported for Retirees	-0.10%	(\$609,000)
Adjustment to Normal Cost Rate	-0.18%	(\$1,038,000)
Adjustment to Actuarial Accrued Liability for Active Members	-0.78%	(\$4,605,000)
Data Changes to Retirees with Added Annuity Option	-0.16%	(\$932,000)
Miscellaneous (gains)/ losses	-0.10%	(\$606,000)
Subtotal	0.01%	\$71,000
December 31, 2001 Employer Rate (Before Change in Actuarial Assumptions)	4.09%	\$24,152,000
<i><u>After Change in Actuarial Assumptions</u></i>		
Change in Demographics Assumptions	0.42%	\$2,495,000
December 31, 2001 Employer Rate (After Change in Actuarial Assumptions)	4.51%	\$26,647,000
Net Impact of Actuarial Experience and Assumptions	0.43%	\$2,566,000

SUMMARY OF VALUATION RESULTS

Explanation of Gain/ Loss Items

Before Change in Actuarial Assumptions

Investment return less than expected - The Association's actuarial valuation assets earned 7.11% which is less than the 8.25% return assumption.

Salary increase more than expected - The average salary increase for continuing active members was 8.5% versus the assumed 5.6%.

Dilution of rate credit from surplus assets - The employer's total payroll (from continuing as well as new active employees) grew by about 10.9% versus the 4.5% expected. As a result of this unexpected growth in payroll, the surplus assets now being used to reduce normal cost are smaller as a percentage of payroll.

Data Changes to Continuance Percent Reported for Retirees - Single retirees who were previously reported as married and entitled to a 60% continuance benefit.

Adjustment in Normal Cost Rate - This is the reduction in normal cost as a result of using more accurate historical service data provided by Pension Gold. In the past, benefit service earned by a member as of the date of valuation was not provided by Benesys. Mercer had estimated the service assuming a member always worked full time and had no gaps in his/her employment. This year, the actual service was reported by Pension Gold and used directly by Mercer in determining benefits.

Adjustment to Actuarial Accrued Liability for Active Members - This is the reduction in actuarial accrued liability as a result of using more accurate historical service data provided by Pension Gold. In the past, benefit service earned by a member as of the date of valuation was not provided by Benesys. Mercer had estimated the service assuming a member always worked full time and had no gaps in his/her employment. This year, the actual service was reported by Pension Gold and used directly by Mercer in determining benefits.

Data Changes to Retirees with Added Annuity Option - This is the reduction in actuarial accrued liability as a result of using more accurate data to value retirees who chose the added annuity option.

Miscellaneous (gains)/ losses - Other rate changes with untraced sources.

After Change in Actuarial Assumptions

Change in Demographics Assumptions - This is the contribution rate impact due to change in both pre-retirement and post-retirement demographic assumptions.

Member Contribution Rate

Change in Member's Rate

<u>Description</u>	<u>% of Payroll</u>	<u>Dollar Impact</u>
December 31, 2000 Employer Rate	7.75%	\$45,755,000
<u>Before Change in Actuarial Assumptions</u>		
Change in Cost to Provide Cost-of-Living Benefits	-0.05%	(\$293,000)
Subtotal	7.70%	\$45,462,000
<u>After Change in Actuarial Assumptions</u>		
Change in Demographic Assumptions	0.00%	\$0
December 31, 2001 Member Rate (After Change in Actuarial Assumptions)	7.70%	\$45,462,000

After Change in Actuarial Assumptions

Change in Demographics Assumptions - The combined General and Safety member contribution rate has not changed even though the contribution rates for General and Safety tier 1 members have slightly decreased and rates for Safety tier 2 members have slightly increased.

General tier 1 and Safety tier 1 member rates are going down because more General tier 1 and Safety tier 1 members are expected to retire after age 50 with a disability retirement. The amount of monthly benefit is not expected to go up as a result of the disability retirement (because the service retirement formula is expected to provide a greater benefit than the 50% of final average salary under the disability formula), but the retirees are expected to collect less cost-of-living benefit as a result of the shorter life expectancy.

The safety basic rates are going up to reflect the longer life expectancies for Safety members.

ACTUARIAL ASSUMPTIONS

Economic Actuarial Assumptions

A brief summary of our recommendations follows:

- Inflation – We recommend the continuation of the current 4.5% inflation assumption.
- Investment Return – A decrease in the investment return assumption from 8.25% to 8.00%. This is primarily due to a decrease in the long term net rate of return expected from the asset classes that ACERA invests in.
- Merit and Longevity Salary Increases – An increase in the current average annual salary increase assumption of 5.6% to 5.9%. The analysis to support the higher salary increase assumptions was carried out as part of our November 30, 2001 triennial experience study.
- Terminal Pay Assumptions – Based on a study of terminal pay data from 192 retirees who received a service retirement benefit between July 2001 and September 2002 we observed that there was a change in behavior among retired members to bank a larger proportion of their unused vacation as part of their retirement planning and converted those unused vacation at retirement to boost their final average earnings and hence received a higher retirement benefit.

The factors supporting our 4.5% inflation assumption are provided in this section. The considerations behind our investment return, merit and longevity increases and pay assumptions are provided in our memorandum to the Boards dated March 16, 2003. A copy of that memorandum is provided in Appendix F.

Inflation

Recommendation

We recommend that the Board continue using the current inflation assumption of 4.50%.

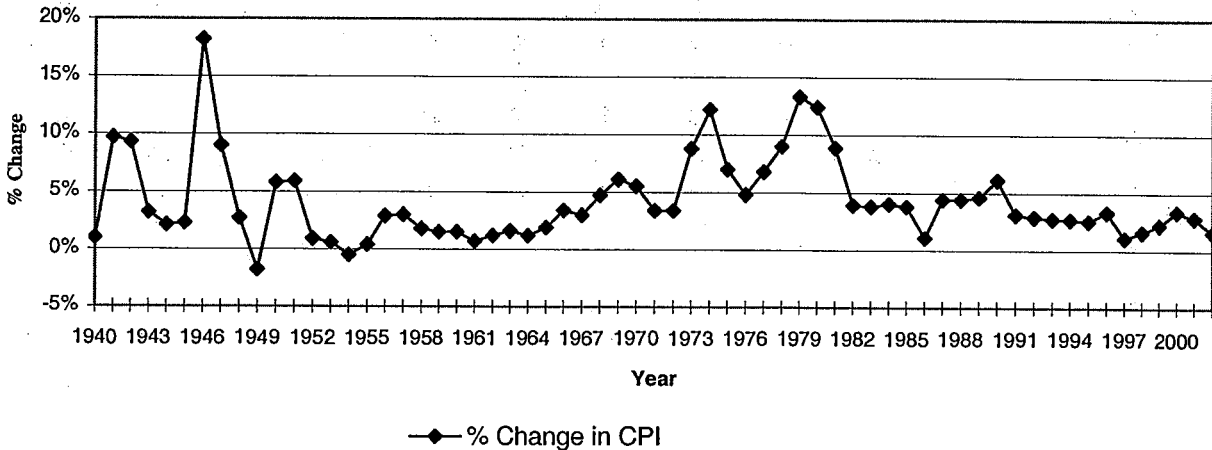
The analysis supporting our recommendation follows.

Setting the Assumption

The rate of inflation has varied significantly over time. The following chart shows the annual increases in the Consumer Price Index over the last 62 years:

Chart 1

Annual Increase in CPI (1940 Through 2002)



CPI History

Table 1 provides the annualized increases in the Consumer Price Index for recent and extended periods over the last 60 years.

Table 1
History of CPI Increases
Expressed as an Annualized Average (1)

Number of Years Ending 12/31/2002:	<u>CPI</u>
10	2.39%
20	3.10%
30	4.92%
40	4.54%
50	3.89%
60	4.02%

(1) Geometric average. CPI data is based upon US All City Average, CPI-U for years after 1979.

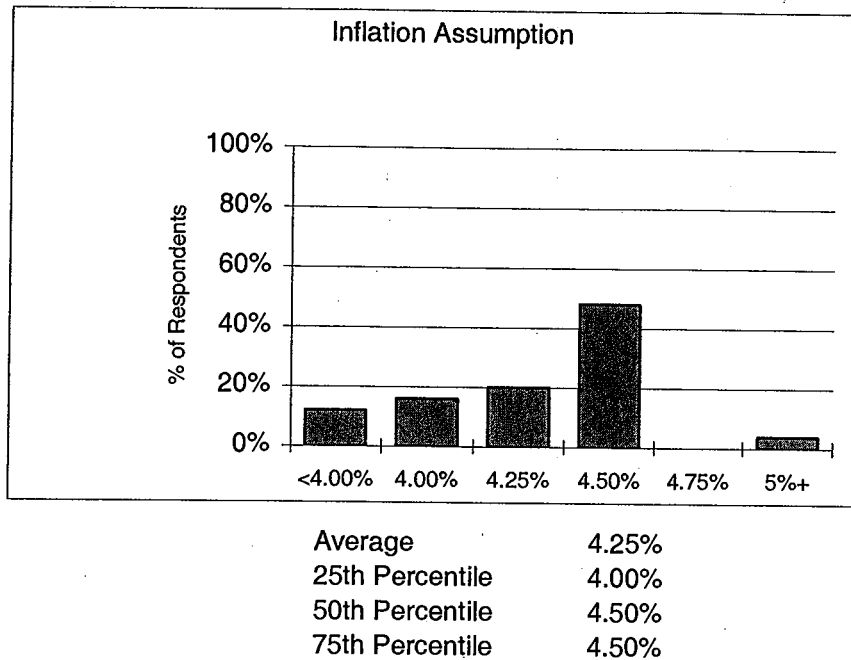
With the exception of the last 30-year period, which is heavily influenced by the high inflationary period between 1972 and 1981, inflation has typically ranged between about 3.00% and 4.50%. On the other hand, the last ten years have produced inflation somewhat below the bottom end of this range. After considering both long-term historical and recent trends, we have concluded that an appropriate range for long-term inflation is 3.50% to 4.50%.

Forecasts of Inflation

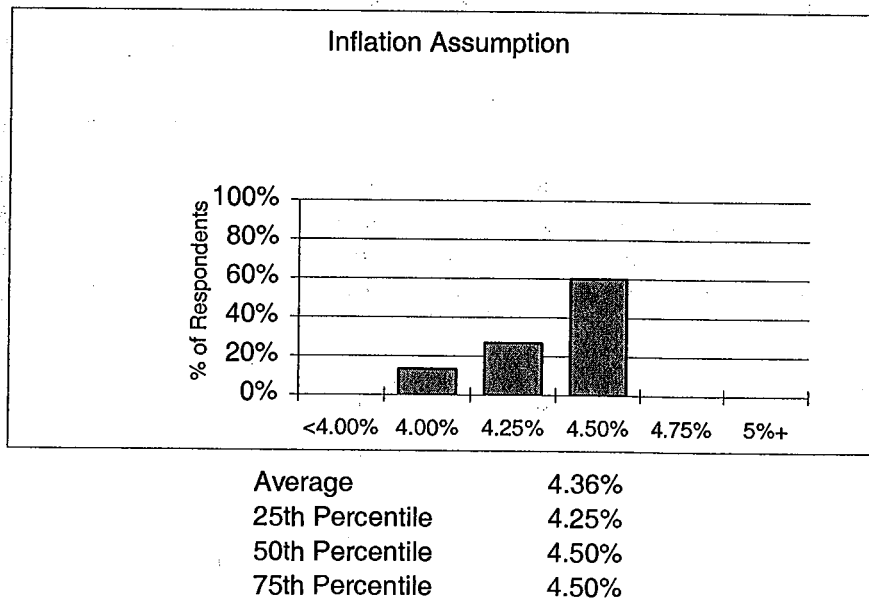
We believe it is valuable to examine inflation assumptions adopted by similarly situated public retirement systems as an indicator of their long-term inflation expectations. Charts 2 and 3 provide the inflation assumptions used by the 25 California public retirement systems who responded to Mercer's 2001 survey of economic actuarial assumptions, and the 15 1937 Act respondents, respectively.

The average inflation rates from the survey for the 25 systems was about 4.25%. Rates used by reporting 1937 Act systems averaged about 4.36%.

**Chart 2 - Comparisons of Economic Actuarial Assumptions
All Respondents
(Based on 25 responses)**



**Chart 3 - Comparison of Economic Actuarial Assumptions
37 Act County Respondents
(Based on 15 responses)**



Treasury Yield Curves

Inflation expectations implicit in Treasury yield curves can vary widely over a relatively short period of time. As a result, we have not included a Treasury yield analysis as part of our inflation assumption development.

Other Consideration

The inflation assumption is used in determining the total salary increase (total salary increase is equal to merit increase plus inflation). Recent salary increase data is provided below:

Recent History of Salary Increases

Average Salary Increase Observed During the Last 5 Valuations*

<u>Valuation Date</u>	<u>Actual Increase</u>	<u>Expected Increase</u>
12/31/2001	8.50%	5.9%***
12/31/2000	5.50%	5.6%
12/31/1999	6.40%	5.6%
12/31/1998	7.40%**	5.6%
12/31/1997	4.80%	5.6%
Average	6.52%	5.7%

* We have excluded 12/31/2002 salary data from this analysis because those salaries were skewed by one-time retroactive pay adjustments paid during 2002. However, we estimated that salaries increases received by Safety members were about 12.8%

** Before Ventura increases

*** Based on recommended assumption.

Summary

We conclude from our analysis that:

1. Historical inflation data indicates an assumption range of 3.5% to 4.5%.
2. Inflation forecasts inherent in inflation assumptions adopted by similarly situated retirement systems are in the neighborhood of 4.25%.
3. Recent salary increase data supports maintaining the assumption at the high end of the range.

Based on this data, we believe a 4.5% long-term inflation assumption is reasonable.

Non-Economic Actuarial Assumptions

We reviewed the demographic experience of the Association as part of our November 30, 2001 triennial experience analysis. Details of our review can be found in our March, 2002 report. Tables showing the assumptions used for this report can be found in Appendix B. There were no changes to the non-economic assumptions since our last valuation.

General

Non-economic assumptions are based on observed experience by category of employment by age and/or service group.

The non-economic assumptions were reviewed at the time of November 30, 2001 experience investigation. Adjustments to the current assumptions were based upon a determination of the likelihood that the most recent experience could be produced as merely a statistical variation of the current assumptions.

If the most recent experience demonstrates a deviation from current assumptions which is deemed statistically significant, a credibility weighting is attached to this experience. The credibility weighting can vary significantly among the various components depending upon whether there is a low or high number of occurrences. The credibility weighting will also depend upon the presence of any non-recurring events that might affect the predictive ability of the recent experience.

Post-retirement mortality tables will generally be some variation of standard tables developed by actuarial professional organizations from a much wider base of data.

Components

1. Nonvested withdrawal
2. Service retirement
3. Disability retirement (service and nonservice connected)
4. Pre-retirement death benefits (while eligible for service retirement; before service retirement eligibility; service and nonservice connected)
5. Deferred retirement
6. Post-retirement mortality

Components 1 through 5 represent the probabilities of separation from active service due to various causes. Component 6 represents the length of time members will live after retirement.

Separation from Active Service

In the November 30, 2001 experience study, an analysis was carried out to determine the probability of members terminating from active service for various causes. The probabilities developed in that study are used as the basis of determining costs in this valuation.

The probabilities for each non-economic assumption component are listed in Appendix B.

Post-Retirement Mortality

In the November 30, 2001 experience study, the mortality of members after service and after disability retirement was also analyzed and changes were made to reflect a trend to toward improved mortality. The life expectancies are shown in Appendix B.

Mortality Basis for Members' Basic Contribution Rates

We have calculated member contribution rates utilizing a sex-independent mortality basis under Section 31676.1 and 31676.12 for General Tier 1 and Tier 2 members, respectively, and Section 31664 for Safety members. The mortality tables are the 1994 Group Annuity Mortality Table for males set back four years for General Members and the 1994 Group Annuity Mortality Table with a two-year setback for Safety Members. In our opinion, these tables can reasonably be expected to represent the aggregate future mortality for each group and provide an adequate and equitable mortality basis for determining member contribution rates.

Recognition of Terminal Pay in Determining Member Contribution Rates

The Association's legal counsel has concluded that in determining a member's normal contribution rate "since the increase in terminal pay assumption appears to be an ongoing trend it is properly considered as a part of the final compensation calculation. Accordingly, the cost of any increase in this assumption should increase both the employer and employee contribution rates as set forth in the statute".

In this valuation, we have begun to allocate the cost to convert terminal pay in determining a member's normal rate. Please note that this new allocation policy will only have an impact on a member's normal rate as the member's COLA rate is set pursuant to Section 31873 without specific reference to what is the member's final average compensation but rather to pay for one-half of the total cost required to provide for the COLA benefit. In determining the total cost required to provide for the COLA benefit, we have always had an assumption built-in to anticipate the conversion of terminal pay and the procedure we used to calculate the member's share of the COLA benefit is therefore not changed by the legal opinion.

ACTUARIAL VALUATION METHODS

Actuarial Funding Method

Responsibility of the Actuary

A retirement system is a long-term proposition. It contains benefit promises that extend many decades into the future. The fiduciaries responsible for funding the system cannot wait until these promises become due before seeking out the money needed to pay for them. The actuary's primary responsibility is to assist the Board to structure a financial plan to advance fund the benefit promises of the system and to monitor its performance. This financial plan is more commonly referred to as an actuarial funding method.

Employer Contributions

Employer contributions consist of two components:

1. *Normal Cost* - That annual contribution rate which, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement-related benefits. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution rate is expressed as a level percentage of the member's compensation.
2. *Contribution to the Unfunded Actuarial Accrued Liability (UAAL)* - That annual contribution rate which, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution is calculated to remain as a level percentage of future active member payroll (including payroll of new members as they enter the Association) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments are scheduled to increase at the assumed annual inflation rate of 4.50%. The UAAL is being funded over a 30 year period following December 31, 2002.

The actuarial funding method just described, which has been adopted by the Board, is called the Entry Age Normal Funding Method.

A more complete definition of the Unfunded Actuarial Accrued Liability and other actuarial terms is provided in the Glossary of Actuarial Terms which can be found in Appendix G.

Member Contributions

Articles 6 and 6.8 of the 1937 Act define the methodology to be used in the calculation of member basic contribution rates for General and Safety members, respectively. The basic contribution rate is determined as that percentage of compensation which, if paid annually from a member's first year of membership through age 60 for General members (age 50 for Safety members), would accumulate to the amount necessary to fund an annuity at that age equal to 1/100 of Final Average Salary for General Tier 1 and Safety members (1/120 for General members under Tier 2). Please note that in estimating Final Average Salary, we have included an assumption to anticipate how much unused vacation would be available for conversion at retirement. Accumulation includes annual crediting of interest at the assumed investment earnings rate. Members also pay 50% of the cost of living benefit.

Actuarial Value of Assets

Background

Under the Entry Age Normal Actuarial Funding Method, a determination is made of the target value of assets the Association would hold if current employer normal cost and member contribution rates had been paid from each member's entry age through the actuarial valuation date and credited with the current investment return assumption. This target value of assets is called the Actuarial Accrued Liability (AAL). The Unfunded Actuarial Accrued Liability (UAAL) is equal to the AAL less the Actuarial Value of Assets as of the actuarial valuation date.

Actuarial Standards

In 1993 the Actuarial Standards Board issued Standard of Practice (SOP) No. 4 entitled Measuring Pension Obligations. Section 5.2.6 of SOP No. 4 states, in part, that the Actuarial Value of Assets should generally reflect some function of market value; however, it may be appropriate to use methods which smooth out the effects of short-term volatility in market value.

In Mercer's opinion, the use of smoothing methods is especially important for employers with limited budgetary flexibility, such as governmental entities.

ACTUARIAL VALUE OF ASSETS (continued)

Below is the development of the actuarial value of assets assuming the market value corridor is applied in the December 31, 2002 valuation (see steps 4 and 5). Since the actuarial asset value was about 126% of market value as of December 31, 2002, the corridor limits the determination of actuarial value of assets to 120% of market value, as of December 31, 2002.

Table 8

Six Month Period		Total Actual Market	Expected Market	Investment	Deferred	Deferred
From	To	Return (net)	Return (net)	Gain (Loss)	Factor	Return
1/99	6/99	208,849,267	134,948,767	73,900,500	0.2	14,780,100
7/99	12/99	297,386,717	146,683,006	150,703,711	0.3	45,211,113
1/00	6/00	75,158,786	157,462,253	(82,303,467)	0.4	(32,921,387)
7/00	12/00	(83,147,325)	158,464,713	(241,612,038)	0.5	(120,806,019)
1/01	6/01	(76,028,101)	153,144,503	(229,172,605)	0.6	(137,503,563)
7/01	12/01	(52,912,745)	148,172,548	(201,085,293)	0.7	(140,759,705)
1/02	6/02	(111,719,793)	144,243,116	(255,962,909)	0.8	(204,770,327)
7/02	12/02	(140,700,812)	137,930,598	(278,631,410)	0.9	(250,768,269)
1. Total deferred return						(827,538,057)
2. Market Value						3,182,940,172
3. Actuarial Value of Assets (Item 2 - Item 1)						4,010,478,229
4. Corridor Limit						
a. 80% of Net Market Value						2,546,352,138
b. 120% of Net Market Value						3,819,528,207
5. Actuarial Value (Item 3 after corridor applied)						3,819,528,207
6. Non-valuation reserves and designations:						
a. Reserve for Interest Fluctuations, Not Less Than \$0						0
b. Supplemental Retiree Benefits Reserve						518,460,112
c. Other non-valuation reserves (Includes the 401(h) Reserve)						7,015,219
d. Subtotal						525,475,332
7. Actuarial Value of Assets for valuation (Item 5 - Item 6)						3,294,052,875

The following table provides the losses to be recognized in each of the next five valuations. Due to the application of the corridor limit this year, we recommend a "fresh start" approach to recognize deferred investment losses over the next five valuations. Under the proposed method, the losses would be divided into equal portions and one portion would be recognized during the following 9 interest crediting cycles.

Valuation Date	Amount to be recognized
12/31/2003	(141,464,008)
12/31/2004	(141,464,008)
12/31/2005	(141,464,008)
12/31/2006	(141,464,008)
12/31/2007	(70,732,004)
Total	(636,588,034)

ACTUARIAL VALUATION RESULTS

Employer and Member Contribution Rates

The following Table 9 provides a comparison of the Employer and Member contribution rates and estimated annual contribution amounts under the current and recommended actuarial assumption. The estimated annual contribution amounts are based upon annual payroll as of the actuarial valuation date.

Table 9
Contribution Rates and Estimated Annual Contributions

Valuation Basis (Inflation/Investment Return/ Salary Increase)	Employer Contributions		Member Contributions	
	<u>Rate*</u>	<u>Annual Amount*</u>	<u>Rate*</u>	<u>Annual Amount*</u>
Current Rates (4.50%/8.25%/5.60%)	4.50%	\$28,846,000	7.70%	\$49,359,000
Recommended Rates (4.50%/8.00%/5.90%)	12.26%	\$78,529,000	8.64%	\$55,380,000

* Based on total annual salaries as of December 31, 2002 of \$640,777,000.

Recommended Employer and Member Contribution Rates

Mercer recommends the adoption of the recommended rates and the assumptions which underlie those rates. The component parts of the current and recommended member and employer contribution rates broken down among the various member categories can be found in Tables 10 and 11, respectively.

Please note that the County rate in Table 11 also applies to the Hospital Authority and will be supplemented with a Pension Obligation Bond debt service payment from the Authority to the County.

Explanation of Changes in Actuarial Values

Employer Contribution Rate

The average employer contribution rate increased from 4.50% to 12.26% due to the following causes:

Change in Employer's Rate		
<u>Description</u>	<u>% of Payroll</u>	<u>Dollar Impact</u>
December 31, 2001 Employer Rate	4.50%	\$28,846,000
<u>Description</u>		
Investment return less than expected	5.83%	\$37,357,000
Miscellaneous Experience	-0.08%	(\$554,000)
Terminal Pay	0.77%	\$4,934,000
Salary Scale Increase	0.46%	\$2,948,000
Interest Rate assumption change	1.85%	\$11,854,000
Salary Loss	0.36%	\$2,307,000
Amortization Schedule Change	-1.19%	(\$7,625,000)
Terminal Pay Cost Sharing	-0.24%	(\$1,538,000)
Subtotal	7.76%	\$49,683,000
December 31, 2002 Employer Rate	12.26%	\$78,529,000

Explanation of Gain/Loss Items

Investment Return less than expect: The Association's actuarial valuation assets earned 1.08%, which was less than the 8.25% return assumption.

Terminal Pay: Increase to anticipate conversion of a larger proportion of unused vacation at retirement.

Miscellaneous Experience: Gain from untraced sources.

Salary Scale Increase: Increase due to the change in salary scale assumption from average of 5.6% to 5.9%.

Interest Rate assumption change: Increase in rate due to a reduction in investment return assumption from 8.25% to 8.00%.

Salary Loss: The average safety member salary increased by 12.8%, which was higher than the 5.6% expected.

Amortization Schedule Change: Change in the amortization schedule from 16 years to 30 years.

Terminal Pay Cost Sharing: Reflect new legal counsel opinion to share the cost of terminal pay conversion with members.

Change in Employee's Rate

<u>Description</u>	<u>% of Payroll</u>	<u>Dollar Impact</u>
December 31, 2001 Employee Rate	7.70%	\$49,359,000
Miscellaneous Experience	0.02%	\$126,000
Salary Scale Increase	0.25%	\$1,602,000
Interest Rate assumption change	0.43%	\$2,755,000
Terminal Pay Cost Sharing	0.24%	\$1,538,000
Subtotal	0.94%	\$6,021,000
December 31, 2002 Employee Rate	8.64%	\$55,380,000

Explanation of Gain/Loss Items

Miscellaneous Experience: Gain from untraced sources.

Salary Scale Increase: Increase due to the change in salary scale assumption from average of 5.6% to 5.9%.

Interest Rate assumption change: Increase in rate due to a reduction in investment return assumption from 8.25% to 8.00%.

Terminal Pay Cost Sharing: Reflect new legal counsel opinion to share the cost of terminal pay conversion with members.

Table 10
Summary of Employee Contribution Rates

Current Member Rates *

4.50% inflation, 8.25% interest and 5.60% salary scale assumption

Entry Age	GENERAL		Entry Age	SAFETY	
	Tier 1	Tier 2		Tier 1	Tier 2
25	8.77%	6.18%	21	10.62%	8.91%
35	9.79%	6.90%	25	11.03%	9.27%
45	11.11%	7.83%	30	11.69%	9.81%

Recommended Member Rates *

4.50% inflation, 8.00% interest and 5.90% salary scale assumption, terminal pay cost sharing

Entry Age	GENERAL		Entry Age	SAFETY	
	Tier 1	Tier 2		Tier 1	Tier 2
25	10.59%	7.22%	21	13.22%	10.33%
35	11.32%	7.72%	25	13.44%	10.52%
45	12.39%	8.47%	30	13.90%	10.88%

* Contributions for the first \$161 of biweekly payroll are based on 2/3 of the above rates.

Table 10 (continued)

Employee Contribution Rate Detail
Current Rates

4.50% inflation, 8.25% interest and 5.60% salary scale assumption

	GENERAL			SAFETY		
	Tier 1	Tier 2	Annual Amount	Tier 1	Tier 2	Annual Amount
Basic	5.82%	5.73%	\$6,720,000	7.31%	8.06%	\$5,943,000
COL	2.18%	1.28%	\$2,517,000	3.07%	2.06%	\$1,519,000
Total	8.00%	7.01%	\$9,237,000	10.38%	10.12%	\$7,462,000
Average rate for the total group = 7.70%						

NOTE: Contribution amounts are based on total annual salaries as of the valuation date.

Annual Salaries	GENERAL		SAFETY		Total
	Tier 1	Tier 2	Tier 1	Tier 2	
County*	\$108,043,875	\$421,788,316	\$29,793,430	\$73,738,321	\$633,363,941
District	\$7,413,364	\$0	\$0	\$0	\$7,413,364
TOTAL	\$115,457,239	\$421,788,316	\$29,793,430	\$73,738,321	\$640,777,305

* Includes payroll for employees of the Hospital Authority

Table 10 (continued)

Employee Contribution Rate Detail
Recommended Rates based on following assumptions adopted by the Board
4.50 % inflation, 8.00 % interest, 5.90 % salary scale assumption, and revised terminal pay assumptions

	GENERAL			SAFETY				
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2		
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount		
Basic	6.65%	\$7,678,000	6.44%	\$27,163,000	8.31%	\$2,476,000	8.93%	\$6,585,000
COL	2.31%	\$2,667,000	1.44%	\$6,074,000	3.47%	\$1,034,000	2.31%	\$1,703,000
Total	8.96%	\$10,345,000	7.88%	\$33,237,000	11.78%	\$3,510,000	11.24%	\$8,288,000
Average rate for the total group =							8.64%	

NOTE: Contribution amounts are based on total annual salaries as of the valuation date.

	GENERAL			SAFETY		
	Tier 1	Tier 2	Tier 1	Tier 2	Total	Total
Annual Salaries	\$108,043,875	\$421,788,316	\$29,793,430	\$73,738,321	\$633,363,941	\$633,363,941
County*	\$7,413,364	\$0	\$0	\$0	\$7,413,364	\$7,413,364
District	\$115,457,239	\$421,788,316	\$29,793,430	\$73,738,321	\$640,777,305	\$640,777,305
TOTAL						

* Includes payroll for employees of the Hospital Authority

**Table 11
Employer Contribution Rate Detail
Current Rates
4.50% inflation, 8.25% interest and 5.60% salary scale assumption**

	COUNTY RATES*						SAFETY			Aggregate Annual Amount
	GENERAL		Tier 1		Tier 2		Tier 1		Tier 2	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	
Normal Cost	10.82%	\$ 11,690,000	8.29%	\$ 34,966,000	11.13%	\$ 3,316,000	12.33%	\$ 9,092,000	9.33%	\$ 59,064,000
Contribution to UAAL	5.39%	5,824,000	5.39%	22,734,000	5.76%	1,716,000	5.76%	4,247,000	5.45%	34,521,000
Pension Obligation	-10.31%	(11,140,000)	-10.31%	(43,486,000)	-10.93%	(3,256,000)	-10.93%	(8,059,000)	-10.41%	(65,941,000)
Net Contribution to UAAL	-4.92%	(5,316,000)	-4.92%	(20,752,000)	-5.17%	(1,540,000)	-5.17%	(3,812,000)	-4.96%	(31,420,000)
Total	5.90%	\$ 6,374,000	3.37%	\$ 14,214,000	5.96%	\$ 1,776,000	7.16%	\$ 5,280,000	4.37%	\$ 27,644,000

	DISTRICT RATES						SAFETY			Aggregate Annual Amount
	GENERAL		Tier 1		Tier 2		Tier 1		Tier 2	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	
Normal Cost	10.82%	\$ 802,000	N/A	N/A	N/A	N/A	N/A	N/A	10.82%	\$ 802,000
Contribution to UAAL	5.39%	400,000	N/A	N/A	N/A	N/A	N/A	N/A	5.39%	400,000
Total	16.21%	\$ 1,202,000	N/A	N/A	N/A	N/A	N/A	N/A	16.21%	\$ 1,202,000

Average rate for the total group = 4.5%

NOTE: Contribution amounts are based on total annual salaries as of the valuation date.

	GENERAL			SAFETY			TOTAL
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	
	Annual Amount	Annual Amount	Annual Amount	Annual Amount	Annual Amount	Annual Amount	
Annual Salaries	\$108,043,875	\$421,788,316	\$29,793,430	\$0	\$73,738,321	\$73,738,321	\$633,363,941
County**	\$7,413,364	\$0	\$0	\$0	\$0	\$0	\$7,413,364
District	\$115,457,239	\$421,788,316	\$29,793,430	\$0	\$73,738,321	\$73,738,321	\$640,777,305
Total	\$115,457,239	\$421,788,316	\$29,793,430	\$0	\$73,738,321	\$73,738,321	\$640,777,305

N/A - not applicable

* Hospital Authority pays the same rate as the County plus Pension Obligation Bond debt service.
** Includes payroll for employees of the Hospital Authority

**Table 11 (continued)
Employer Contribution Rate Detail
Recommended Rates based on following assumptions adopted by the Board
4.50% inflation, 8.00% interest and 5.90% salary scale assumption**

	COUNTY RATES*						Aggregate Annual Amount			
	GENERAL		TIER 1		SAFETY Tier 2					
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount				
Normal Cost	11.23%	\$ 12,133,000	8.98%	\$ 37,877,000	12.35%	\$ 3,679,000	13.71%	\$ 10,110,000	10.07%	\$ 63,799,000
Contribution to UAAL Pension Obligation Bond Credit	6.14%	6,634,000	6.14%	25,898,000	9.44%	2,812,000	9.44%	6,961,000	6.68%	42,305,000
Net Contribution to UAAL	-4.59%	(4,959,000)	-4.59%	(19,360,000)	-4.39%	(1,307,000)	-4.39%	(3,237,000)	-4.56%	(28,863,000)
Total	1.55%	1,675,000	1.55%	6,538,000	5.05%	1,505,000	5.05%	3,724,000	2.12%	13,442,000
	12.78%	\$ 13,808,000	10.53%	\$ 44,415,000	17.40%	\$ 5,184,000	18.76%	\$ 13,854,000	12.19%	\$ 77,241,000

DISTRICT RATES

	DISTRICT RATES						Aggregate Annual Amount	
	GENERAL		TIER 1		SAFETY Tier 2			
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount		
Normal Cost	11.23%	\$ 833,000	N/A	N/A	N/A	N/A	11.24%	\$ 833,000
Contribution to UAAL	6.14%	455,000	N/A	N/A	N/A	N/A	6.14%	455,000
Total	17.37%	\$ 1,288,000	N/A	N/A	N/A	N/A	17.38%	\$ 1,288,000

Average rate for the total group = 12.26%

NOTE: Contribution amounts are based on total annual salaries as of the valuation date.

	GENERAL						TOTAL Aggregate Annual Amount
	TIER 1		TIER 2		SAFETY Tier 2		
	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	
Annual Salaries County** District Total	\$108,043,875 \$7,413,364 \$115,457,239	N/A N/A N/A	\$421,788,316 \$0 \$421,788,316	N/A N/A N/A	\$73,738,321 \$0 \$73,738,321	N/A N/A N/A	\$633,363,941 \$7,413,364 \$640,777,305

N/A - not applicable

* Hospital Authority pays the same rate as the County plus Pension Obligation Bond debt service.
** Includes payroll for employees of the Hospital Authority

Breakdown of Employer Contribution Rate by Types of Benefit *(For information purposes only)*

We have been requested by the Association's Staff to provide a breakdown of the portion of the employer contribution rate by the various types of benefit provided. The breakdown is as follows:

Table 12

	<u>General</u>	<u>Safety</u>
Service Connected Disability	12%	19%
Service Retirement and Other Benefits	<u>88%</u>	<u>81%</u>
	100%	100%

Note: In developing these percentages, we assumed that the liabilities for all types of benefits are funded to the same degree and member contributions are available for both disability and non-disability benefits.

FUNDING STATUS

Evaluation of Funding Status

Background

The evaluation of the Association's funding status is simply the comparison of its actual value of assets to a target value of assets. There is one funding status measure calculated for the Association:

<u>Funding Status Measure</u>	<u>Target Assets</u>	<u>Actual Assets</u>	<u>Purpose</u>
Funding Progress (GASB No. 25)	Actuarial Accrued Liability	Actuarial Value of Assets	Progress toward funding UAAL

This section of the report provides the Association's funding status under this measure, followed by an exhibit which summarizes the Association's funding history.

Funding Progress — GASB No. 25

The GASB has issued two statements; Accounting for Pensions by State and Local Government Employers (GASB Statement No. 27); and Financial Reporting for Defined Benefit and Note Disclosures for Defined Contribution Plans (GASB Statement No. 25). These statements require funding status to be measured based upon the actuarial funding method adopted by the Board of Retirement, i.e., for ACERA, the Entry Age Normal Funding Method. Thus, the target value of assets is equal to the Actuarial Accrued Liability (AAL) and the actual value of assets is the Actuarial Value of Assets developed earlier in this report.

FUNDING STATUS

The GASB Statement No. 25 liabilities and assets from December 31, 1995 to December 31, 2002 are as follows:

Actuarial Valuation Date	Actuarial Value of Assets (1) (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
12/31/1995	\$1,684,299,000	\$1,951,052,000	\$266,753,000	86.3%	\$373,605,000	71.4%
12/31/1996	\$2,113,009,000	\$2,067,916,000	(\$45,093,000)	102.2%	\$389,696,000	-11.6%
12/31/1997	\$2,313,787,000	\$2,218,319,000	(\$95,468,000)	104.3%	\$413,045,000	-23.1%
12/31/1998	\$2,830,438,000	\$2,613,012,000	(\$217,426,000)	108.3%	\$462,465,000	-47.0%
12/31/1999	\$2,997,932,000	\$2,762,524,000	(\$235,408,000)	108.5%	\$487,986,000	-48.2%
12/31/2000	\$3,169,178,000	\$2,936,631,000	(\$232,547,000)	107.9%	\$532,305,000	-43.7%
12/31/2001	\$3,321,794,000	\$3,140,216,000	(\$181,579,000)	105.8%	\$590,392,000	-30.8%
12/31/2002	\$3,294,053,000	\$3,559,613,000	\$265,560,000	92.5%	\$640,777,000	41.4%

(1) Exclude accounts payable, SRBR, 401(h) account, reserve for interest fluctuations, and retiree death benefit reserves.

FUNDING HISTORY

Funding History

It is informative to monitor the history of key actuarial and other financial results over time as a dynamic indicator of the Association's ongoing funding progress. The following exhibit provides a 16-year history of the following items:

- (1) Actuarial Accrued Liability (AAL)
- (2) Actuarial Value of Assets
- (3) Unfunded Actuarial Accrued Liability (UAAL)
- (4) Funding Method Progress Ratio
- (5) Investment Return Assumption
- (6) Rate of Return on Actuarial Value of Assets
- (7) Aggregate Employer Contribution Rate
- (8) Aggregate Member Contribution Rate
- (9) Total Contributions to the Association
- (10) Benefit Payments
- (11) Aggregate Contributions minus Benefit Payments
- (12) Investment Income
- (13) Aggregate Contributions plus Investment Income minus Benefit Payments

Alameda County Employees' Retirement Association Funding History
(All Dollars in 000's)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Actuarial Valuation Date	Actuarial Value of Assets (1)	U.A.A.L.	(2)(1) G.A.S.B. 25 Funding Ratio	Investment Return Assumption	Net Return on Actuarial Value of Assets	Employer Contribution Rate	Average Member Contribution Rate	Prior Year Total Contributions to Association	Prior Year Benefit Payments	Prior Year Free Cash Flow (9)-(10)	Prior Year Cash Investment Income	Prior Year Total Cash Flow (11)+(12)
12/31/1987	N/A	N/A	N/A	9.50%	13.55%	9.58%	7.13%	\$42,470	\$38,377	\$4,093	\$78,146	\$82,239
12/31/1988	N/A	N/A	N/A	8.50%	7.34%	13.43%	7.39%	\$42,576	\$40,789	\$1,787	\$48,555	\$50,342
12/31/1989	\$1,115,806	\$345,881	69.0%	8.50%	11.66%	10.20%	\$46,981	\$48,083	(\$1,102)	\$76,291	\$75,189	
12/31/1990	\$1,226,200	\$394,343	67.8%	8.50%	7.18%	10.41%	\$54,277	\$51,412	\$2,865	\$56,756	\$59,621	
12/31/1991	\$1,353,473	\$424,766	68.6%	8.50%	10.65%	10.64%	\$60,592	\$53,885	\$6,707	\$79,719	\$86,426	
12/31/1992	\$1,498,111	\$488,937	67.4%	8.25%	7.26%	11.80%	\$65,779	\$57,266	\$8,513	\$77,432	\$85,945	
12/31/1993	\$1,629,505	\$553,407	66.0%	8.00%	8.60%	13.97%	\$68,321	\$71,000	(\$2,679)	\$138,659	\$135,980	
12/31/1994	\$1,715,028	\$271,558	84.2%	8.00%	5.80%	5.34% ⁽³⁾	\$73,677	\$75,253	(\$1,576)	\$68,333	\$66,757	
12/31/1995	\$1,951,052	\$266,753	86.3%	8.00%	11.70%	6.17% ⁽⁴⁾	\$371,522 ⁽⁵⁾	\$81,472	\$290,050	\$160,771	\$450,821 ⁽⁶⁾	
12/31/1996	\$2,067,916	(\$45,093)	102.2%	8.00%	12.00%	5.71%	\$335,835	\$84,677	\$251,158	\$204,009	\$455,167	
12/31/1997	\$2,218,319	(\$95,468)	104.3%	8.00%	13.32%	5.63%	\$56,156	\$85,677	(\$29,521)	\$317,639	\$288,118	
12/31/1998	\$2,613,012	(\$217,426)	108.3%	8.25%	16.85%	4.46%	\$60,138	\$105,583	(\$45,445)	\$251,321	\$205,876	
12/31/1999	\$2,762,524	(\$235,408)	108.5%	8.25%	7.34%	4.18%	\$65,400	\$118,978	(\$53,578)	\$68,838	\$15,260	
12/31/2000	\$2,936,631	(\$232,547)	107.9%	8.25%	8.48%	4.14%	\$64,873	\$161,550	(\$96,677)	N/A	N/A	
12/31/2001	\$3,140,216	(\$181,578)	105.8%	8.25%	7.11%	4.50%	\$70,904	\$159,674	(\$88,770)	N/A	N/A	
12/31/2002	\$3,539,613	\$265,560	92.5%	8.00%	1.08%	12.26%	\$80,271	\$161,993	(\$81,722)	N/A	N/A	

(1) Excludes SRBR and Reserve for Interest Fluctuation.
 (2) Includes \$307,923 from Pension Obligation Bonds issued 4/20/95. Assets include discounted value as of January 1, 1995.
 (3) Employer Contribution Rate excluding the pension obligation bonds is 15.18%.
 (4) Employer Contribution Rate excluding the pension obligation bonds is 16.61%.
 (5) Includes \$283,485 in pension obligation bonds issued 12/19/96.
 (6) Includes \$259,112 in accelerated actuarial gains from asset valuation method.

ACTUARIAL BALANCE SHEET

Actuarial Balance Sheet

The purpose of the Actuarial Balance Sheet is to compare assets with liabilities in order to define the portion of the liabilities which need to be funded by the Employer and Members in the future.

Association liabilities equal the present value of all future benefits expected to be paid to current and future pensioners and beneficiaries of the Association.

Association assets are equal to the sum of:

- The assets currently available to pay benefits,
- The present value of future contributions expected to be made by current active members, and
- The present value of future contributions expected to be made by the employer.

The last item, the present value of future employer contributions, is made up of two parts:

Member Category	<u>Contribution Rate</u>	<u>Annual Amount</u>
<i>County and Districts</i>		
General Tier 1	11.23%	\$ 12,966,000
General Tier 2	8.98%	\$ 37,877,000
Safety Tier 1	12.35%	\$ 3,679,000
Safety Tier 2	13.71%	\$ 10,110,000

1. The Present Value of Future Employer Normal Costs: Using the Entry Age Normal Cost Method, the employer budgets a certain percentage of payroll which will be sufficient to fund benefits for members from their entry into the Association. The Normal Cost is the level percentage of salary each year that is necessary to fund Members' benefits under the current benefit provisions. Normal Cost is funded from a Member's date of employment to the expected retirement date. An adjustment is made for the deductions which will be made from the future salaries of Association members. For this valuation, the Normal Costs are:

The present value of these future Employer Normal Cost contributions represents one piece of the present value of future employer contributions.

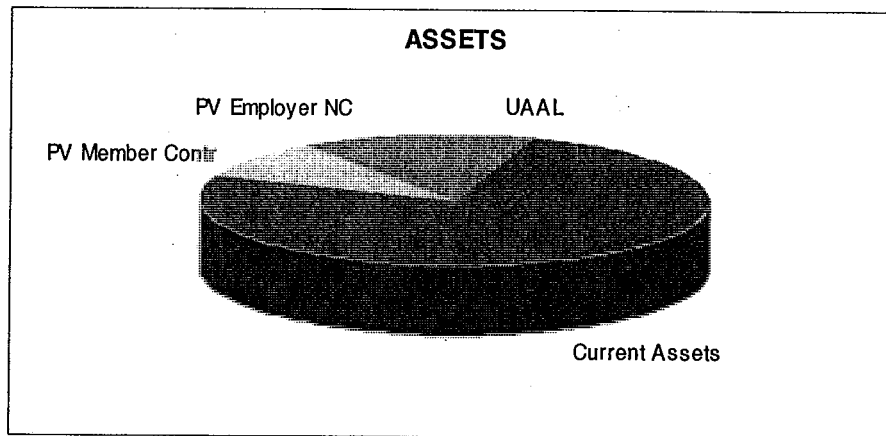
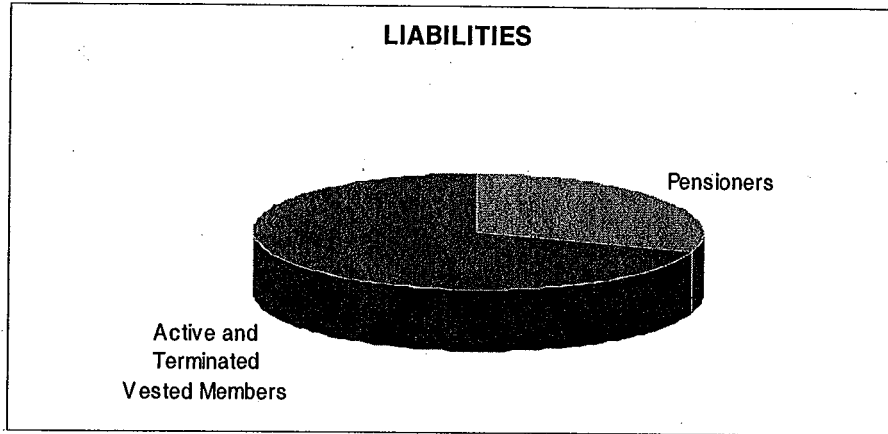
2. The Unfunded Actuarial Accrued Liability: The portion of the present value of future employer contributions which will not be funded by the future Entry Age Normal Cost contributions is the Unfunded Actuarial Accrued Liability (UAAL). The UAAL arises from prior contributions that were less than the current Normal Cost. This usually results from benefits and assumption changes and the net effect of prior gains and losses. If the employer had always contributed the current Normal Cost, if there were no prior benefit or assumption changes and if actual experience exactly matched the actuarial assumptions, the Normal Cost would be sufficient to fund all benefits and there would be no UAAL.

For the current year, we have determined that the appropriate amounts needed to fund the UAAL are:

Member Category	<u>Contribution Rate</u>	<u>Annual Amount*</u>
<i>County</i>		
General Tier 1	1.55%	\$ 1,675,000
General Tier 2	1.55%	\$ 6,538,000
Safety Tier 1	5.05%	\$ 1,505,000
Safety Tier 2	5.05%	\$ 3,724,000
<i>Districts</i>		
General Tier 1	6.14%	\$ 455,000

* Increases with inflation rate to remain as a level percentage of payroll for current and future members.

The following chart illustrates the breakdown of Balance Sheet assets and liabilities of the Association. It shows that 30% of the Association's liabilities are due to the retired members and their beneficiaries and 70% to active members. About 81% of Association assets consist of current available assets with 19% consisting of future contributions from the employer and the members.



ACTUARIAL BALANCE SHEET
(As of December 31, 2002)

ASSETS			
	<u>Basic</u>	<u>COL</u>	<u>Total</u>
1. Total Assets at Actuarial Value (gross of current liabilities)	\$ 2,700,045,594	\$ 1,030,242,554	\$ 3,730,288,148
2. Present Value of Future Member Contributions	385,080,997	97,015,747	482,096,744
3. Present Value of Future Employer Contributions on Account of:			
a) Normal Cost	418,340,788	91,469,149	509,809,938
b) Unfunded Actuarial Accrued Liability	218,038,396	47,521,136	265,559,532
4. Total Actuarial Assets	<u>\$ 3,721,505,775</u>	<u>\$ 1,266,248,587</u>	<u>\$ 4,987,754,361</u>
LIABILITIES			
5. Present Value of Retirement Allowances Payable	\$ 935,418,982	\$ 625,886,513	\$ 1,561,305,495
6. Present Value of Retirement Allowances to be Granted for:			
a) Service Retirement*	2,041,377,344	566,481,423	2,607,858,767
b) Disability Retirement	199,051,685	48,486,851	247,538,536
7. Present Value of Death Benefits to be Granted for:			
a) 6 Months' Salary and Return of Contributions	386,165	28,148	414,313
b) Death While Eligible to Retire	48,458,742	11,804,240	60,262,982
c) Duty Death	5,209,293	1,325,037	6,534,330
8. Present Value of Members' Contributions to be Returned Upon Withdrawal Before Retirement	55,368,291	12,236,375	67,604,666
9. Reserve for Interest Fluctuation	(108,296,255)	0	(108,296,255)
10. Supplemental Retirees Benefit Reserve	518,460,112	0	518,460,112
11. Death Benefit Reserve	4,918,608	0	4,918,608
12. Members' Deposits Reserve Unclaimed	247,194	0	247,194
13. Current Liabilities	20,905,613	0	20,905,613
14. Total Actuarial Liabilities	<u>\$ 3,721,505,775</u>	<u>\$ 1,266,248,587</u>	<u>\$ 4,987,754,361</u>

* Includes liability for current deferred vested members

ASSOCIATION ASSETS

Association Assets

The market value of assets and related financial information was provided to us by the Association staff. We have not audited or verified the financial statements.

	<u>December 31, 2002</u>	<u>December 31, 2001</u>	Percent Change
Market Value	\$3,182,940,172	\$3,517,082,363	-9.50%
Actuarial Valuation Assets	\$3,294,052,875	\$3,321,793,815	-0.80%
Reserve Assets	\$3,927,824,462	\$3,850,506,131	2.00%

The approximate rates of return on plan assets are shown below, based on the following analysis

	Market Value	Actuarial Valuation Assets	Reserve Assets*
Value of Assets at 12/31/2001	\$3,517,082,363	\$3,321,793,815	3,850,506,131
Contributions:			
Employer	\$26,985,360	\$26,985,360	\$26,985,360
Members	\$53,285,998	\$53,285,998	\$53,285,998
Benefits Paid to Participants	161,992,934	\$143,549,657	161,992,934
Expenses Paid	47,276,000	\$47,276,000	47,276,000
Investment Earnings	(205,144,614)	82,813,359	206,315,907
Value of Assets at 12/31/2002	3,182,940,172	3,294,052,875	3,927,824,462
NET RATE OF RETURN (Net of Expenses)	-7.26%	1.08%	4.17%

* Exclude non-interest bearing reserves, i.e., Market Stabilization and Contingency Reserves

**ASSOCIATION ACCOUNTING ASSETS,
RESERVES AND OTHER LIABILITIES**

As of December 31, 2002

Assets (Market Values)

Cash and Short-term Investments	\$ 116,172,324
Accounts Receivable	29,590,216
Real Estate Investments	343,168,927
Common Stocks	1,694,248,118
Bonds	1,009,756,235
Fixed Assets	9,420,704
Securities Lending Collateral	211,962,069
Prepaid Expenses	422,553
Total Assets	\$ 3,414,741,146

Reserves and Liabilities

Normal Contributions	\$ 716,529,902
Cost-of-Living Contribution	\$ 183,618,072
Unclaimed Contribution	\$ 247,194
County Advance Reserve	\$ 618,278,247
Death Benefit Reserve	\$ 4,918,608
Annuity Reserve	\$ 378,766,290
Current Service Pension Reserve	\$ 620,944,185
Prior Service Pension Reserve	\$ 2,877,518
Survivors' Death Benefit Reserve	\$ 2,766,606
Supplemental Retirees Benefit Reserves	\$ 518,460,112
Cost of Living Reserve	\$ 880,417,728
Accounts Payable	\$ 231,800,973
Reserve for Interest Fluctuations	\$ (108,296,255)
TOTAL LIABILITIES	\$ 4,051,329,180
Difference in Market to Actuarial Value	\$ (636,588,034)
Gross Assets for Pension Benefit	\$ 3,414,741,146

* Total pension reserve used in ACERA's interest accounting process is \$3,294,052,875
Total pension reserve used for the actuarial valuation is \$3,294,052,875

APPENDICES

MAJOR PROVISIONS OF THE PENSION PLAN

Benefit Sections 31676.1, 31676.12 and 31664
of the 1937 County Act

Briefly summarized below are major provisions of the California Government Code, as amended through December 31, 2002, and as adopted by Alameda County.

Membership

Employees hired after June 30, 1983 become members under Tier 2. All other members are covered by Tier 1 provisions.

Final Average Salary

Final average salary (FAS) is defined as the highest 12 consecutive months of compensation earnable for Tier 1 and highest 36 consecutive months for Tier 2.

Return of Contributions

If a member should resign or die before becoming eligible for retirement, his or her contributions plus interest will be refunded. In lieu of receiving a return of contributions, a member with five or more years of service may elect to leave his or her contributions on deposit and receive a deferred vested benefit when eligible for retirement.

Service Retirement Benefit

Members with 10 years of service who have attained the age of 50 are eligible to retire. Members with 30 years of service (20 years for Safety), regardless of age, are eligible to retire.

The benefit is a percentage of monthly FAS per year of service, depending on age at retirement and is illustrated below for typical ages. For members integrated with Social Security, the benefit is reduced by 1/3 of the percentage shown below times the first \$350 of monthly FAS per year of service credited after January 1, 1956.

PERCENTAGE OF FINAL AVERAGE SALARY GENERAL			
Age	Tier 1	Tier 2	Safety
50	1.34%	1.18%	2.00%
55	1.77%	1.49%	2.62%
60	2.34%	1.92%	2.62%
62	2.62%	2.09%	2.62%
65 and over	2.62%	2.43%	2.62%

Disability Benefit

Members with 5 years of service, regardless of age, are eligible for nonservice connected disability. The benefit is 1.8% (1.5% for Tier 2 General members) of FAS for each year of service. If this benefit does not equal 1/3 of FAS, the benefit is increased by the above percentage of FAS for the years which would have been credited to age 62 for Tier 1 General members, age 65 for Tier 2 General members and age 55 for Safety members. The total benefit in this case cannot exceed 1/3 of FAS.

If the disability is service connected, the member may retire regardless of length of service, with a benefit which is the higher of 50% of FAS or the benefit derived from the member's age and salary.

Death Benefit (Before Retirement)

In addition to the return of contributions, a lump sum death benefit is payable to the member's beneficiary or estate equal to one month's salary for each completed year of service under the Retirement System, based on the final year's average salary, but not to exceed six months' salary.

If a member dies while eligible for service retirement or non-service connected disability, the eligible surviving spouse receives 60% of the allowance that the member would have received for retirement on the day of his or her death.

If a member dies in the performance of duty, the spouse receives 50% of the member's FAS.

Death Benefit (After Retirement)

If a member dies after retirement, a lump sum amount of \$5,000 is paid to the beneficiary or estate.

If the retirement was for service connected disability, 100% of the member's allowance as it was at death is continued to the surviving spouse for life.

If the retirement was for other than service connected disability, 60% of the member's allowance is continued to the spouse for life.

Active Death Equity Benefit (ADEB)

In 2000, the Retirement Board authorized the ADEB option which provides a continuance to the surviving spouse of a member who died because of non-service connected disability equal to 100% of the member's reduced allowance.

The funding of the ADEB benefit is provided from assets held in the Supplemental Retirement Benefits Reserve. The Retirement Board reserves the right to terminate the ADEB for future recipients.

Maximum Benefit

The maximum basic benefit payable to a member or beneficiary is 100% of FAS.

Cost of Living

The increases are based on the change in the Bay Area Consumer Price Index for the calendar year prior to the April 1 effective date. The maximum increase in retirement allowance is 3% per year for Tier 1 and 2% for Tier 2 members. COLA Banks are set up for retirees and accumulated when the Bay Area CPI is greater than the maximum allowance. If banks are sufficient, they are depleted when the CPI is smaller than the maximum allowance.

Contribution Rates

Member basic rates are based on a formula reflecting the age at entry into the System. The rates are such as to provide, for each year of service, an average annuity at age 60 of 1/100 of FAS for General members under Tier 1, at age 60 of 1/120 of FAS for General members under Tier 2, and at age 50 of 1/100 of FAS for Safety members. Please note that in estimating FAS, we have included an assumption to anticipate how much unused vacation would be available for conversion at retirement. Member cost of living rates are actuarially determined to pay for one-half of future cost of living liabilities.

For members integrated with Social Security, the above contributions are reduced by one-third of that portion of such contribution payable with respect to the first \$350 of monthly salary. Member contributions are refundable upon termination from the System.

Employer contribution rates are actuarially determined to provide for the balance of the contributions needed to fund the benefits promised under the Retirement System.

APPENDIX B

**SUMMARY OF ASSUMPTIONS
AND FUNDING METHOD**

SUMMARY OF ASSUMPTIONS AND FUNDING METHOD

Assumptions

Valuation Interest Rate	8.00%
Inflation Assumption	4.50%
Cost-of-Living Adjustments	for Tier 1 members: 3% for Tier 2 members: 2%
Interest Rate Credited to Active Member Accounts	8.00%

Post-Retirement Mortality

(a) Service

General Member

Males	1994 Group Annuity Mortality Table with two-year setback (Male)
Females	1994 Group Annuity Mortality Table with one-year setback (Female)
Safety Members	1994 Group Annuity Mortality Table with two-year setback (Male)
Beneficiaries	1994 Group Annuity Mortality Table with one-year setback (Female)

(b) Disability

General	1981 General Disability Mortality Table with three-year setback
Safety	1981 Safety Disability Mortality Table with no setback

(c) For Employee Contribution
Rate Purposes

General	1994 Group Annuity Mortality Table with a four-year setback (Male)
Safety	1994 Group Annuity Mortality Table with a two-year setback (Male)
Pre-Retirement Mortality	Based upon the Experience Analysis from 12/1/1998 – 11/30/2001
Withdrawal Rates	Based upon the Experience Analysis from 12/1/1998 – 11/30/2001
Disability Rates	Based upon the Experience Analysis from 12/1/1998 – 11/30/2001
Service Retirement Rates	Based upon the Experience Analysis from 12/1/1998 – 11/30/2001
Salary Scales	Total increases of 5.90% per year reflecting approximately 4.50% for inflation and approximately 1.4% for merit and longevity
Percent of Active and Inactive Members Married	
Males	80%
Females	55%
Beneficiary Age Difference	
Males	3 years older
Females	3 years younger
Value of Assets for Contribution Rate Purposes	Actuarial value as developed in Actuarial Valuation Method Section of this report

Additional "Ventura" Earnable Compensation — Terminal Pay

To estimate the impact of including terminal pay as part of Earnable Compensation, we collected terminal pay data from 192 retirees who received a service retirement benefit between July 2001 (the date that terminal pay information was first separately identified in the Association's new Pension Gold system) and September 2002

Based on that data, the following percentages were derived to estimate the percentage increase in final average earnings that result from inclusion of terminal pay.

Membership Category	Service Retirement	Disability Retirement*
General Tier 1	8.4%	7.0%
Safety Tier 1	11.1%	8.5%
General Tier 2	2.8%	2.8%
Safety Tier 2	2.8%	2.8%

- * For General and Safety Tier 1 retirees, the terminal pay assumptions are calculated by taking the average of the current terminal pay assumptions and the observed terminal pay percentages. We are recommending a lower assumption for disabled retirees because they generally cannot plan ahead for their retirement and they tend to retire with fewer years of service.

Conversion of Unused Sick Leave Service

We assume each active member will be able to accumulate an additional 0.008 years of retirement service credit from unused sick leave for each year of employment.

Funding Method

The County's liability is being funded on the Entry Age Normal Method with an Unfunded Actuarial Accrued Liability (UAAL). The current amortization period for the UAAL is 30 years from the valuation date.

Exhibit I
PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

GENERAL TIER 1 MALE MEMBERS

Age	Withdrawal			Terminated Vested	Ordinary Disability	Duty Disability	Ordinary Death	Duty Death	Service Retirement	
	0<X<3	3<=X<4	4<=X<5							5<=X
20	0.12746	0.11725	0.05250	0.05250	0.00000	0.00000	0.00010	0.00055	0.00010	0.00000
21	0.12746	0.11725	0.05250	0.05250	0.00000	0.00000	0.00010	0.00055	0.00010	0.00000
22	0.12746	0.11725	0.05250	0.05250	0.00000	0.00000	0.00010	0.00055	0.00010	0.00000
23	0.12746	0.11725	0.05250	0.05250	0.00000	0.00000	0.00010	0.00057	0.00010	0.00000
24	0.12746	0.11725	0.05250	0.05250	0.00000	0.00000	0.00010	0.00060	0.00010	0.00000
25	0.12746	0.11725	0.05250	0.05250	0.00100	0.00020	0.00010	0.00063	0.00010	0.00000
26	0.12746	0.11725	0.05250	0.05250	0.00180	0.00020	0.00010	0.00067	0.00010	0.00000
27	0.12746	0.11725	0.05250	0.05250	0.00270	0.00020	0.00010	0.00071	0.00010	0.00000
28	0.12746	0.11725	0.05250	0.05250	0.00360	0.00020	0.00010	0.00075	0.00010	0.00000
29	0.12746	0.11725	0.05250	0.05250	0.00450	0.00020	0.00010	0.00078	0.00010	0.00000
30	0.12746	0.11725	0.05250	0.05250	0.00464	0.00020	0.00010	0.00081	0.00010	0.00000
31	0.12746	0.11725	0.05250	0.05250	0.00548	0.00030	0.00010	0.00084	0.00010	0.00000
32	0.12746	0.11725	0.05250	0.05250	0.00633	0.00030	0.00010	0.00086	0.00010	0.00000
33	0.12746	0.11725	0.05250	0.05250	0.00658	0.00030	0.00010	0.00088	0.00010	0.00000
34	0.12746	0.11725	0.05250	0.05250	0.00683	0.00040	0.00010	0.00090	0.00010	0.00000
35	0.12746	0.11725	0.05250	0.05250	0.00840	0.00040	0.00010	0.00091	0.00010	0.00000
36	0.12746	0.11725	0.05250	0.05250	0.00870	0.00040	0.00010	0.00091	0.00010	0.00000
37	0.12746	0.11725	0.05250	0.05250	0.00900	0.00050	0.00020	0.00092	0.00010	0.00000
38	0.12746	0.11725	0.05250	0.03287	0.00900	0.00050	0.00030	0.00093	0.00010	0.00000
39	0.12746	0.11725	0.05250	0.03069	0.00900	0.00060	0.00030	0.00096	0.00010	0.00000
40	0.12746	0.11725	0.05250	0.02851	0.00870	0.00070	0.00040	0.00101	0.00009	0.00000
41	0.12746	0.11725	0.05250	0.02025	0.00841	0.00080	0.00040	0.00108	0.00009	0.00000
42	0.12746	0.11725	0.05250	0.01345	0.00811	0.00090	0.00050	0.00115	0.00009	0.00000
43	0.12746	0.11725	0.05250	0.01059	0.00781	0.00100	0.00060	0.00124	0.00009	0.00000
44	0.12746	0.11725	0.05250	0.00827	0.00752	0.00100	0.00060	0.00135	0.00009	0.00000
45	0.07283	0.06700	0.03000	0.00366	0.00722	0.00110	0.00070	0.00145	0.00009	0.00000
46	0.07283	0.06700	0.03000	0.00261	0.00722	0.00110	0.00070	0.00157	0.00009	0.00000
47	0.07283	0.06700	0.03000	0.00250	0.00722	0.00120	0.00080	0.00170	0.00009	0.00000
48	0.07283	0.06700	0.03000	0.00250	0.00722	0.00130	0.00080	0.00185	0.00009	0.00000
49	0.07283	0.06700	0.03000	0.00250	0.00722	0.00130	0.00090	0.00204	0.00009	0.00000
50	0.07283	0.06700	0.03000	0.00250	0.00660	0.00140	0.00140	0.00226	0.00009	0.03000
51	0.07283	0.06700	0.03000	0.00240	0.00598	0.00140	0.00190	0.00250	0.00009	0.01304
52	0.07283	0.06700	0.03000	0.00220	0.00535	0.00150	0.00240	0.00277	0.00009	0.01800
53	0.07283	0.06700	0.03000	0.00200	0.00406	0.00160	0.00290	0.00309	0.00009	0.02200
54	0.07283	0.06700	0.03000	0.00180	0.00294	0.00170	0.00340	0.00346	0.00009	0.02700
55	0.07283	0.06700	0.03000	0.00160	0.00200	0.00180	0.00340	0.00385	0.00009	0.09066
56	0.07283	0.06700	0.03000	0.00140	0.00132	0.00190	0.00340	0.00428	0.00009	0.07668
57	0.07283	0.06700	0.03000	0.00100	0.00073	0.00200	0.00340	0.00476	0.00009	0.07478
58	0.07283	0.06700	0.03000	0.00070	0.00083	0.00220	0.00340	0.00532	0.00009	0.08088
59	0.07283	0.06700	0.03000	0.00030	0.00083	0.00240	0.00340	0.00600	0.00009	0.10443
60	0.07283	0.06700	0.03000	0.00000	0.00080	0.00260	0.00340	0.00677	0.00010	0.18094
61	0.07283	0.06700	0.03000	0.00000	0.00080	0.00280	0.00340	0.00762	0.00010	0.17724
62	0.07283	0.06700	0.03000	0.00000	0.00080	0.00300	0.00340	0.00858	0.00010	0.40643
63	0.07283	0.06700	0.03000	0.00000	0.00080	0.00320	0.00340	0.00966	0.00010	0.20377
64	0.07283	0.06700	0.03000	0.00000	0.00080	0.00340	0.00340	0.01091	0.00010	0.16813
65	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01234	0.00010	0.27670
66	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01391	0.00010	0.31133
67	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01563	0.00010	0.23942
68	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01746	0.00010	0.41043
69	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01939	0.00010	0.54724
70	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

GENERAL TIER 1 FEMALE MEMBERS

Age	Withdrawal				Terminated	Ordinary	Duty	Ordinary	Duty	Service
	0<X<3	3<=X<4	4<=X<5	5<=X	Vested	Disability	Disability	Death	Death	Retirement
20	0.16309	0.10500	0.05250	0.05250	0.00000	0.00000	0.00010	0.00031	0.00000	0.00000
21	0.16309	0.10500	0.05250	0.05250	0.00000	0.00000	0.00010	0.00031	0.00000	0.00000
22	0.16309	0.10500	0.05250	0.05250	0.00000	0.00000	0.00010	0.00031	0.00000	0.00000
23	0.16309	0.10500	0.05250	0.05250	0.00000	0.00000	0.00010	0.00031	0.00000	0.00000
24	0.16309	0.10500	0.05250	0.05250	0.00000	0.00000	0.00010	0.00031	0.00000	0.00000
25	0.16309	0.10500	0.05250	0.05250	0.00094	0.00030	0.00010	0.00031	0.00000	0.00000
26	0.16309	0.10500	0.05250	0.05250	0.00170	0.00030	0.00010	0.00032	0.00000	0.00000
27	0.16309	0.10500	0.05250	0.05250	0.00254	0.00030	0.00010	0.00032	0.00000	0.00000
28	0.16309	0.10500	0.05250	0.05250	0.00339	0.00030	0.00010	0.00034	0.00000	0.00000
29	0.16309	0.10500	0.05250	0.05250	0.00424	0.00040	0.00010	0.00036	0.00000	0.00000
30	0.16309	0.10500	0.05250	0.05149	0.00638	0.00040	0.00019	0.00038	0.00000	0.00000
31	0.16309	0.10500	0.05250	0.05048	0.00754	0.00040	0.00028	0.00040	0.00000	0.00000
32	0.16309	0.10500	0.05250	0.04947	0.00870	0.00040	0.00028	0.00043	0.00000	0.00000
33	0.16309	0.10500	0.05250	0.04846	0.00986	0.00050	0.00038	0.00045	0.00000	0.00000
34	0.16309	0.10500	0.05250	0.04745	0.01000	0.00060	0.00038	0.00048	0.00000	0.00000
35	0.16309	0.10500	0.05250	0.04644	0.01500	0.00070	0.00050	0.00051	0.00010	0.00000
36	0.16309	0.10500	0.05250	0.04543	0.02000	0.00080	0.00050	0.00055	0.00010	0.00000
37	0.16309	0.10500	0.05250	0.04442	0.02000	0.00090	0.00060	0.00059	0.00010	0.00000
38	0.16309	0.10500	0.05250	0.03146	0.02000	0.00090	0.00060	0.00064	0.00010	0.00000
39	0.16309	0.10500	0.05250	0.02073	0.02000	0.00090	0.00060	0.00070	0.00010	0.00000
40	0.16309	0.10500	0.05250	0.01222	0.02000	0.00100	0.00078	0.00076	0.00009	0.00000
41	0.16309	0.10500	0.05250	0.00812	0.02000	0.00100	0.00078	0.00083	0.00009	0.00000
42	0.16309	0.10500	0.05250	0.00465	0.01500	0.00100	0.00078	0.00089	0.00009	0.00000
43	0.16309	0.10500	0.05250	0.00549	0.00937	0.00110	0.00078	0.00094	0.00009	0.00000
44	0.16309	0.10500	0.05250	0.00612	0.00922	0.00110	0.00078	0.00099	0.00009	0.00000
45	0.10873	0.07000	0.03000	0.00330	0.00906	0.00120	0.00113	0.00105	0.00009	0.00000
46	0.10873	0.07000	0.03000	0.00310	0.00853	0.00140	0.00149	0.00111	0.00009	0.00000
47	0.10873	0.07000	0.03000	0.00290	0.00799	0.00160	0.00184	0.00120	0.00009	0.00000
48	0.10873	0.07000	0.03000	0.00270	0.00767	0.00180	0.00220	0.00130	0.00009	0.00000
49	0.10873	0.07000	0.03000	0.00250	0.00735	0.00200	0.00255	0.00141	0.00009	0.00000
50	0.10873	0.07000	0.03000	0.00243	0.00666	0.00200	0.00291	0.00154	0.00009	0.03454
51	0.10873	0.07000	0.03000	0.00219	0.00597	0.00200	0.00291	0.00169	0.00009	0.02415
52	0.10873	0.07000	0.03000	0.00195	0.00528	0.00200	0.00323	0.00186	0.00009	0.02144
53	0.10873	0.07000	0.03000	0.00167	0.00459	0.00200	0.00355	0.00205	0.00009	0.02324
54	0.10873	0.07000	0.03000	0.00141	0.00390	0.00200	0.00388	0.00224	0.00009	0.02861
55	0.10873	0.07000	0.03000	0.00120	0.00321	0.00200	0.00488	0.00247	0.00009	0.07152
56	0.10873	0.07000	0.03000	0.00100	0.00294	0.00200	0.00588	0.00276	0.00009	0.06243
57	0.10873	0.07000	0.03000	0.00080	0.00268	0.00200	0.00688	0.00314	0.00009	0.07371
58	0.10873	0.07000	0.03000	0.00060	0.00254	0.00200	0.00788	0.00361	0.00009	0.09874
59	0.10873	0.07000	0.03000	0.00040	0.00250	0.00200	0.00888	0.00415	0.00009	0.10165
60	0.10873	0.07000	0.03000	0.00000	0.00210	0.00200	0.00888	0.00477	0.00009	0.19641
61	0.10873	0.07000	0.03000	0.00000	0.00180	0.00200	0.00888	0.00548	0.00009	0.18587
62	0.10873	0.07000	0.03000	0.00000	0.00150	0.00200	0.00888	0.00627	0.00010	0.21019
63	0.10873	0.07000	0.03000	0.00000	0.00120	0.00200	0.00888	0.00718	0.00010	0.18490
64	0.10873	0.07000	0.03000	0.00000	0.00090	0.00200	0.00888	0.00819	0.00010	0.08453
65	0.00000	0.00000	0.00000	0.00000	0.00060	0.00000	0.00000	0.00929	0.00010	0.25410
66	0.00000	0.00000	0.00000	0.00000	0.00050	0.00000	0.00000	0.01042	0.00010	0.22297
67	0.00000	0.00000	0.00000	0.00000	0.00040	0.00000	0.00000	0.01157	0.00010	0.31489
68	0.00000	0.00000	0.00000	0.00000	0.00030	0.00000	0.00000	0.01265	0.00010	0.19724
69	0.00000	0.00000	0.00000	0.00000	0.00020	0.00000	0.00000	0.01367	0.00010	0.46257
70	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

GENERAL TIER 2 MALE MEMBERS

Age	Withdrawal					Terminated Vested		Ordinary Disability	Duty Disability	Ordinary Death	Duty Death	Service Retirement	
	0<X<1	1<=X<2	2<=X<3	3<=X<4	4<=X<5	5<=X	X<5						X>5
20	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01570	0.03140	0.00000	0.00010	0.00055	0.00010	0.00000
21	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01570	0.03140	0.00000	0.00010	0.00055	0.00010	0.00000
22	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01570	0.03140	0.00000	0.00010	0.00055	0.00010	0.00000
23	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01570	0.03140	0.00000	0.00010	0.00057	0.00010	0.00000
24	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01570	0.03140	0.00000	0.00010	0.00060	0.00010	0.00000
25	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01470	0.02940	0.00020	0.00010	0.00063	0.00009	0.00000
26	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01370	0.02740	0.00020	0.00010	0.00067	0.00009	0.00000
27	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01270	0.02540	0.00020	0.00010	0.00071	0.00009	0.00000
28	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01170	0.02340	0.00020	0.00010	0.00075	0.00009	0.00000
29	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01070	0.02140	0.00019	0.00010	0.00078	0.00009	0.00000
30	0.14518	0.09528	0.07365	0.06695	0.03000	0.03000	0.01055	0.02110	0.00019	0.00010	0.00081	0.00009	0.00000
31	0.14518	0.09528	0.07365	0.06695	0.03000	0.02923	0.01040	0.02080	0.00028	0.00009	0.00084	0.00009	0.00000
32	0.14518	0.09528	0.07365	0.06695	0.03000	0.02846	0.01025	0.02050	0.00027	0.00009	0.00086	0.00009	0.00000
33	0.14518	0.09528	0.07365	0.06695	0.03000	0.02768	0.01010	0.02020	0.00043	0.00018	0.00088	0.00009	0.00000
34	0.14518	0.09528	0.07365	0.06695	0.03000	0.02691	0.01010	0.02020	0.00078	0.00026	0.00090	0.00009	0.00000
35	0.14518	0.09528	0.07365	0.06695	0.03000	0.02614	0.01000	0.02000	0.00098	0.00035	0.00091	0.00008	0.00000
36	0.14518	0.09528	0.07365	0.06695	0.03000	0.02537	0.01000	0.02000	0.00119	0.00043	0.00091	0.00008	0.00000
37	0.14518	0.09528	0.07365	0.06695	0.03000	0.02460	0.01000	0.02000	0.00174	0.00104	0.00092	0.00008	0.00000
38	0.14518	0.09528	0.07365	0.06695	0.03000	0.02383	0.01000	0.02000	0.00145	0.00137	0.00093	0.00008	0.00000
39	0.14518	0.09528	0.07365	0.06695	0.03000	0.02305	0.01000	0.02000	0.00139	0.00118	0.00096	0.00008	0.00000
40	0.14518	0.08662	0.07365	0.06695	0.03000	0.02228	0.00875	0.01750	0.00122	0.00132	0.00101	0.00008	0.00000
41	0.14518	0.08662	0.07365	0.06695	0.03000	0.02151	0.00875	0.01750	0.00092	0.00107	0.00108	0.00008	0.00000
42	0.14518	0.08662	0.07365	0.06695	0.03000	0.02074	0.00875	0.01750	0.00051	0.00102	0.00115	0.00008	0.00000
43	0.14518	0.08662	0.07365	0.06695	0.03000	0.01997	0.00875	0.01750	0.00069	0.00146	0.00124	0.00008	0.00000
44	0.14518	0.08662	0.07365	0.06695	0.03000	0.01920	0.00875	0.01750	0.00081	0.00170	0.00135	0.00008	0.00000
45	0.14518	0.08662	0.06695	0.06695	0.03000	0.01842	0.00875	0.01750	0.00102	0.00226	0.00145	0.00008	0.00000
46	0.14518	0.08662	0.06695	0.06695	0.03000	0.01689	0.00875	0.01750	0.00115	0.00254	0.00157	0.00008	0.00000
47	0.14518	0.08662	0.06695	0.06695	0.03000	0.01545	0.00875	0.01750	0.00140	0.00300	0.00170	0.00008	0.00000
48	0.14518	0.08662	0.06695	0.06695	0.03000	0.01466	0.00875	0.01750	0.00140	0.00300	0.00185	0.00008	0.00000
49	0.14518	0.08662	0.06695	0.06695	0.03000	0.01388	0.00875	0.01750	0.00140	0.00300	0.00204	0.00008	0.00000
50	0.14518	0.08662	0.06695	0.06695	0.03000	0.01318	0.00875	0.01750	0.00140	0.00300	0.00226	0.00009	0.01655
51	0.14518	0.08662	0.06695	0.06695	0.03000	0.01222	0.00875	0.01750	0.00140	0.00300	0.00250	0.00009	0.01855
52	0.14518	0.08662	0.06695	0.06695	0.03000	0.01110	0.00875	0.01750	0.00140	0.00300	0.00277	0.00009	0.02055
53	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00875	0.01750	0.00176	0.00376	0.00309	0.00009	0.02255
54	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00875	0.01750	0.00176	0.00513	0.00346	0.00009	0.02455
55	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.01661	0.01661	0.00353	0.00671	0.00385	0.00009	0.03339
56	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.01568	0.01568	0.00353	0.00851	0.00428	0.00009	0.02929
57	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.01393	0.01393	0.00353	0.00900	0.00476	0.00009	0.02964
58	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.01218	0.01218	0.00353	0.00950	0.00532	0.00009	0.04223
59	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00988	0.00988	0.00353	0.01000	0.00600	0.00009	0.06756
60	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00632	0.00632	0.00700	0.01050	0.00677	0.00010	0.08000
61	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00641	0.00641	0.00700	0.01100	0.00762	0.00010	0.10016
62	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00649	0.00649	0.00700	0.01100	0.00858	0.00010	0.25000
63	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00555	0.00555	0.00700	0.01100	0.00966	0.00010	0.18645
64	0.14518	0.08662	0.06695	0.06695	0.03000	0.01000	0.00461	0.00461	0.00700	0.01100	0.01091	0.00010	0.10000
65	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00339	0.00339	0.00000	0.00000	0.01234	0.00010	0.24583
66	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00252	0.00252	0.00000	0.00000	0.01391	0.00010	0.18552
67	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00165	0.00165	0.00000	0.00000	0.01563	0.00010	0.14609
68	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00165	0.00165	0.00000	0.00000	0.01746	0.00010	0.25044
69	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00165	0.00165	0.00000	0.00000	0.01939	0.00010	0.33391
70	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

GENERAL TIER 2 FEMALE MEMBERS

Age	Withdrawal					Terminated Vested		Ordinary	Duty	Ordinary	Duty	Service Retirement
	0<X<1	1<=X<3	3<=X<4	4<=X<5	5<=X	X<5	X>5	Disability	Disability	Death	Death	
20	0.10000	0.10000	0.07000	0.06000	0.06000	0.00893	0.02550	0.00000	0.00010	0.00031	0.00000	0.00000
21	0.10000	0.10000	0.07000	0.06000	0.06000	0.00893	0.02550	0.00000	0.00010	0.00031	0.00000	0.00000
22	0.10000	0.10000	0.07000	0.06000	0.06000	0.00893	0.02550	0.00000	0.00010	0.00031	0.00000	0.00000
23	0.10000	0.10000	0.07000	0.06000	0.06000	0.00893	0.02550	0.00000	0.00010	0.00031	0.00000	0.00000
24	0.10000	0.10000	0.07000	0.06000	0.06000	0.00893	0.02550	0.00000	0.00009	0.00031	0.00000	0.00000
25	0.10000	0.10000	0.07000	0.06000	0.05000	0.00893	0.02550	0.00009	0.00009	0.00031	0.00000	0.00000
26	0.10000	0.10000	0.07000	0.06000	0.05000	0.00893	0.02550	0.00009	0.00008	0.00032	0.00000	0.00000
27	0.10000	0.10000	0.07000	0.06000	0.05000	0.00893	0.02550	0.00019	0.00008	0.00032	0.00000	0.00000
28	0.10000	0.10000	0.07000	0.06000	0.05000	0.00893	0.02550	0.00019	0.00015	0.00034	0.00000	0.00000
29	0.10000	0.10000	0.07000	0.06000	0.05000	0.00893	0.02550	0.00019	0.00021	0.00036	0.00000	0.00000
30	0.10000	0.10000	0.07000	0.06000	0.04000	0.00892	0.02549	0.00021	0.00069	0.00038	0.00000	0.00000
31	0.10000	0.10000	0.07000	0.06000	0.04000	0.00884	0.02525	0.00021	0.00136	0.00040	0.00000	0.00000
32	0.10000	0.10000	0.07000	0.06000	0.04000	0.00875	0.02500	0.00021	0.00160	0.00043	0.00000	0.00000
33	0.10000	0.10000	0.07000	0.06000	0.04000	0.00823	0.02352	0.00021	0.00180	0.00045	0.00000	0.00000
34	0.10000	0.10000	0.07000	0.06000	0.04000	0.00771	0.02203	0.00028	0.00200	0.00048	0.00000	0.00000
35	0.10000	0.10000	0.07000	0.05000	0.03000	0.00700	0.02000	0.00023	0.00220	0.00051	0.00008	0.00000
36	0.10000	0.10000	0.07000	0.05000	0.03000	0.00700	0.02000	0.00023	0.00240	0.00055	0.00007	0.00000
37	0.10000	0.10000	0.07000	0.05000	0.03000	0.00700	0.02000	0.00023	0.00260	0.00059	0.00007	0.00000
38	0.10000	0.10000	0.07000	0.05000	0.03000	0.00700	0.02000	0.00020	0.00272	0.00064	0.00007	0.00000
39	0.10000	0.10000	0.07000	0.05000	0.03000	0.00700	0.02000	0.00020	0.00285	0.00070	0.00007	0.00000
40	0.10000	0.10000	0.06000	0.03000	0.02000	0.00700	0.02000	0.00022	0.00297	0.00076	0.00007	0.00000
41	0.10000	0.10000	0.06000	0.03000	0.02000	0.00700	0.02000	0.00026	0.00309	0.00083	0.00007	0.00000
42	0.10000	0.10000	0.06000	0.03000	0.02000	0.00700	0.02000	0.00029	0.00322	0.00089	0.00007	0.00000
43	0.10000	0.10000	0.06000	0.03000	0.01801	0.00700	0.02000	0.00029	0.00334	0.00094	0.00007	0.00000
44	0.10000	0.10000	0.06000	0.03000	0.01490	0.00700	0.02000	0.00029	0.00360	0.00099	0.00007	0.00000
45	0.10000	0.08000	0.06000	0.03000	0.01407	0.00700	0.02000	0.00035	0.00370	0.00105	0.00007	0.00000
46	0.10000	0.08000	0.06000	0.03000	0.01145	0.00700	0.02000	0.00035	0.00380	0.00111	0.00007	0.00000
47	0.10000	0.08000	0.06000	0.03000	0.01100	0.00700	0.02000	0.00035	0.00390	0.00120	0.00007	0.00000
48	0.10000	0.08000	0.06000	0.03000	0.01000	0.00700	0.02000	0.00038	0.00400	0.00130	0.00007	0.00000
49	0.10000	0.08000	0.06000	0.03000	0.01000	0.00654	0.01868	0.00038	0.00410	0.00141	0.00007	0.00000
50	0.10000	0.08000	0.06000	0.03000	0.01000	0.01623	0.01623	0.00049	0.00420	0.00154	0.00008	0.01985
51	0.10000	0.08000	0.06000	0.03000	0.01000	0.01378	0.01378	0.00049	0.00430	0.00169	0.00008	0.01775
52	0.10000	0.08000	0.06000	0.03000	0.01000	0.01133	0.01133	0.00062	0.00440	0.00186	0.00008	0.02006
53	0.10000	0.08000	0.06000	0.03000	0.00940	0.01101	0.01101	0.00066	0.00450	0.00205	0.00008	0.01999
54	0.10000	0.08000	0.06000	0.03000	0.00781	0.01069	0.01069	0.00070	0.00460	0.00224	0.00008	0.02276
55	0.10000	0.08000	0.06000	0.03000	0.00873	0.01050	0.01050	0.00102	0.00470	0.00247	0.00009	0.04721
56	0.10000	0.08000	0.06000	0.03000	0.00733	0.01050	0.01050	0.00133	0.00480	0.00276	0.00009	0.03848
57	0.10000	0.08000	0.06000	0.03000	0.00603	0.01050	0.01050	0.00165	0.00490	0.00314	0.00009	0.04259
58	0.10000	0.08000	0.06000	0.03000	0.00575	0.01050	0.01050	0.00197	0.00500	0.00361	0.00009	0.05602
59	0.10000	0.08000	0.06000	0.03000	0.00547	0.01050	0.01050	0.00228	0.00500	0.00415	0.00009	0.05667
60	0.10000	0.08000	0.06000	0.03000	0.00400	0.01050	0.01050	0.00260	0.00500	0.00477	0.00009	0.08495
61	0.10000	0.08000	0.06000	0.03000	0.00300	0.01050	0.01050	0.00280	0.00500	0.00548	0.00009	0.10500
62	0.10000	0.08000	0.06000	0.03000	0.00200	0.01050	0.01050	0.00300	0.00500	0.00627	0.00010	0.21235
63	0.10000	0.08000	0.06000	0.03000	0.00100	0.01050	0.01050	0.00320	0.00500	0.00718	0.00010	0.18006
64	0.10000	0.08000	0.06000	0.03000	0.00000	0.01050	0.01050	0.00340	0.00500	0.00819	0.00010	0.19673
65	0.00000	0.00000	0.00000	0.00000	0.00000	0.00060	0.00060	0.00000	0.00000	0.00929	0.00010	0.32934
66	0.00000	0.00000	0.00000	0.00000	0.00000	0.00050	0.00050	0.00000	0.00000	0.01042	0.00010	0.31494
67	0.00000	0.00000	0.00000	0.00000	0.00000	0.00040	0.00040	0.00000	0.00000	0.01157	0.00010	0.45491
68	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00030	0.00000	0.00000	0.01265	0.00010	0.64987
69	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00020	0.00000	0.00000	0.01367	0.00010	0.77984
70	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

SAFETY TIER 1 MALE MEMBERS

Age	Withdrawal		Terminated <u>Vested</u>	Ordinary <u>Disability</u>	Duty <u>Disability</u>	Ordinary <u>Death</u>	Duty <u>Death</u>	Service <u>Retirement</u>
	<u>0<X<5</u>	<u>5<=X</u>						
20	0.15000	0.15000	0.10000	0.00000	0.00000	0.00055	0.00040	0.00000
21	0.13500	0.13500	0.10000	0.00000	0.00000	0.00057	0.00040	0.00000
22	0.12000	0.12000	0.10000	0.00000	0.00000	0.00060	0.00040	0.00000
23	0.11000	0.11000	0.10000	0.00000	0.00000	0.00063	0.00040	0.00000
24	0.10200	0.10200	0.10000	0.00000	0.00000	0.00067	0.00040	0.00000
25	0.09700	0.09700	0.10000	0.00010	0.00010	0.00071	0.00040	0.00000
26	0.09200	0.09200	0.10000	0.00010	0.00010	0.00075	0.00040	0.00000
27	0.08700	0.08700	0.10000	0.00020	0.00020	0.00078	0.00040	0.00000
28	0.08000	0.08000	0.09980	0.00020	0.00020	0.00081	0.00040	0.00000
29	0.07500	0.07500	0.09960	0.00020	0.00020	0.00084	0.00040	0.00000
30	0.06900	0.06901	0.04423	0.00020	0.00020	0.00086	0.00040	0.00000
31	0.06600	0.06302	0.03237	0.00020	0.00020	0.00088	0.00040	0.00000
32	0.06500	0.05704	0.02643	0.00020	0.00020	0.00090	0.00040	0.00000
33	0.06400	0.05105	0.01737	0.00020	0.00095	0.00091	0.00040	0.00000
34	0.06300	0.04506	0.01025	0.00030	0.00255	0.00091	0.00040	0.00000
35	0.06100	0.03907	0.00760	0.00030	0.00300	0.00092	0.00040	0.00000
36	0.05800	0.03308	0.00515	0.00040	0.00320	0.00093	0.00040	0.00000
37	0.05300	0.02710	0.00500	0.00040	0.00340	0.00096	0.00040	0.00000
38	0.04800	0.02111	0.00500	0.00050	0.00360	0.00101	0.00040	0.00000
39	0.04400	0.01512	0.00500	0.00050	0.00380	0.00108	0.00050	0.00000
40	0.04000	0.00913	0.00500	0.00060	0.00400	0.00115	0.00050	0.00000
41	0.03700	0.00845	0.00500	0.00060	0.00420	0.00124	0.00050	0.00100
42	0.03300	0.00753	0.00500	0.00060	0.00440	0.00135	0.00050	0.00100
43	0.03000	0.00685	0.00403	0.00070	0.00450	0.00145	0.00050	0.00100
44	0.02700	0.00616	0.00284	0.00070	0.00460	0.00157	0.00060	0.00100
45	0.02000	0.00378	0.00179	0.00080	0.00500	0.00170	0.00060	0.00100
46	0.01200	0.00227	0.00097	0.00080	0.00510	0.00185	0.00060	0.00150
47	0.00700	0.00132	0.00014	0.00090	0.00520	0.00204	0.00060	0.00150
48	0.00400	0.00076	0.00053	0.00090	0.00530	0.00226	0.00060	0.00189
49	0.00100	0.00019	0.00092	0.00100	0.00540	0.00250	0.00070	0.00222
50	0.00000	0.00000	0.00046	0.00100	0.00570	0.00277	0.00070	0.06703
51	0.00000	0.00000	0.00059	0.00110	0.00630	0.00309	0.00070	0.02232
52	0.00000	0.00000	0.00072	0.00110	0.00690	0.00346	0.00070	0.02483
53	0.00000	0.00000	0.00112	0.00120	0.00750	0.00385	0.00080	0.04093
54	0.00000	0.00000	0.00151	0.00120	0.00810	0.00428	0.00080	0.12393
55	0.00000	0.00000	0.00000	0.00130	0.00900	0.00476	0.00080	0.27620
56	0.00000	0.00000	0.00000	0.00130	0.01400	0.00532	0.00080	0.22294
57	0.00000	0.00000	0.00000	0.00140	0.01900	0.00600	0.00090	0.23874
58	0.00000	0.00000	0.00000	0.00140	0.02400	0.00677	0.00090	0.23547
59	0.00000	0.00000	0.00000	0.00150	0.02900	0.00762	0.00090	0.61920
60	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
61	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
62	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
63	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
64	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
65	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
66	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
67	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
68	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
69	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
70	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

SAFETY TIER 2 MALE MEMBERS

Age	Withdrawal 0<X<3	3<=X<5	5<=X	Terminated Vested	Ordinary Disability	Duty Disability	Ordinary Death	Duty Death	Service Retirement
20	0.04000	0.03000	0.01000	0.00850	0.00000	0.00000	0.00055	0.00040	0.00000
21	0.04000	0.03000	0.01000	0.00850	0.00000	0.00000	0.00057	0.00040	0.00000
22	0.04000	0.03000	0.01000	0.00850	0.00000	0.00000	0.00060	0.00040	0.00000
23	0.04000	0.03000	0.01000	0.00850	0.00000	0.00000	0.00063	0.00040	0.00000
24	0.04000	0.03000	0.01000	0.00850	0.00000	0.00000	0.00067	0.00040	0.00000
25	0.04000	0.03000	0.01000	0.00850	0.00010	0.00009	0.00071	0.00040	0.00000
26	0.04000	0.03000	0.01000	0.00850	0.00010	0.00009	0.00075	0.00040	0.00000
27	0.04000	0.03000	0.01000	0.00850	0.00020	0.00017	0.00078	0.00040	0.00000
28	0.04000	0.03000	0.01000	0.00850	0.00020	0.00022	0.00081	0.00040	0.00000
29	0.04000	0.03000	0.01000	0.00850	0.00020	0.00027	0.00084	0.00040	0.00000
30	0.04000	0.03000	0.01000	0.00850	0.00020	0.00268	0.00086	0.00040	0.00000
31	0.04000	0.03000	0.01000	0.00850	0.00020	0.00313	0.00088	0.00040	0.00000
32	0.04000	0.03000	0.01000	0.00850	0.00020	0.00357	0.00090	0.00040	0.00000
33	0.04000	0.03000	0.01000	0.00850	0.00020	0.00380	0.00091	0.00040	0.00000
34	0.04000	0.03000	0.01000	0.00850	0.00030	0.00400	0.00091	0.00040	0.00000
35	0.04000	0.03000	0.01000	0.00850	0.00030	0.00420	0.00092	0.00040	0.00000
36	0.04000	0.03000	0.01000	0.00850	0.00040	0.00440	0.00093	0.00040	0.00000
37	0.04000	0.03000	0.01000	0.00850	0.00040	0.00460	0.00096	0.00040	0.00000
38	0.04000	0.03000	0.01000	0.00850	0.00050	0.00480	0.00101	0.00040	0.00000
39	0.04000	0.03000	0.01000	0.00850	0.00050	0.00500	0.00108	0.00050	0.00000
40	0.04000	0.03000	0.01000	0.00850	0.00060	0.00650	0.00115	0.00050	0.00000
41	0.04000	0.03000	0.00920	0.00850	0.00060	0.00700	0.00124	0.00050	0.00100
42	0.04000	0.03000	0.00851	0.00850	0.00060	0.00750	0.00135	0.00050	0.00100
43	0.04000	0.03000	0.00798	0.00850	0.00070	0.00800	0.00145	0.00050	0.00100
44	0.04000	0.03000	0.00740	0.00850	0.00070	0.00850	0.00157	0.00060	0.00100
45	0.04000	0.03000	0.00635	0.00850	0.00080	0.00900	0.00170	0.00060	0.00100
46	0.04000	0.03000	0.00523	0.00850	0.00080	0.00950	0.00185	0.00060	0.00150
47	0.04000	0.03000	0.00403	0.00850	0.00090	0.01000	0.00204	0.00060	0.00150
48	0.04000	0.03000	0.00265	0.00850	0.00090	0.01050	0.00226	0.00060	0.00210
49	0.04000	0.03000	0.00131	0.00850	0.00100	0.01100	0.00250	0.00070	0.00274
50	0.00000	0.00000	0.00000	0.00850	0.00100	0.01100	0.00277	0.00070	0.04248
51	0.00000	0.00000	0.00000	0.00850	0.00110	0.01100	0.00309	0.00070	0.01581
52	0.00000	0.00000	0.00000	0.00850	0.00110	0.01100	0.00346	0.00070	0.01973
53	0.00000	0.00000	0.00000	0.00850	0.00120	0.01100	0.00385	0.00080	0.02939
54	0.00000	0.00000	0.00000	0.00850	0.00120	0.01100	0.00428	0.00080	0.08107
55	0.00000	0.00000	0.00000	0.00000	0.00130	0.01100	0.00476	0.00080	0.14920
56	0.00000	0.00000	0.00000	0.00000	0.00130	0.01096	0.00532	0.00080	0.11111
57	0.00000	0.00000	0.00000	0.00000	0.00140	0.01100	0.00600	0.00090	0.25000
58	0.00000	0.00000	0.00000	0.00000	0.00140	0.01096	0.00677	0.00090	0.10671
59	0.00000	0.00000	0.00000	0.00000	0.00150	0.01100	0.00762	0.00090	0.27490
60	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
61	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
62	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
63	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
64	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
65	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
66	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
67	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
68	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
69	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
70	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

**Ratio of Current Compensation to Compensation
Anticipated At Retirement Age**

Age	General Members	Safety Members
20	0.046	0.090
21	0.050	0.098
22	0.055	0.106
23	0.059	0.115
24	0.064	0.125
25	0.070	0.135
26	0.075	0.145
27	0.081	0.157
28	0.087	0.169
29	0.094	0.181
30	0.101	0.195
31	0.108	0.208
32	0.115	0.222
33	0.123	0.237
34	0.132	0.251
35	0.141	0.267
36	0.150	0.283
37	0.160	0.298
38	0.171	0.315
39	0.182	0.333
40	0.194	0.351
41	0.206	0.371
42	0.219	0.392
43	0.233	0.414
44	0.248	0.437
45	0.263	0.461
46	0.279	0.487
47	0.295	0.514
48	0.312	0.543
49	0.331	0.573
50	0.350	0.605
51	0.371	0.637
52	0.393	0.671
53	0.416	0.707
54	0.439	0.744
55	0.464	0.783
56	0.489	0.823
57	0.516	0.866
58	0.544	0.910
59	0.574	0.954
60	0.605	1.000
61	0.637	
62	0.670	
63	0.706	
64	0.743	
65	0.782	
66	0.823	
67	0.865	
68	0.910	
69	0.954	
70	1.000	

YEARS OF LIFE EXPECTANCY AFTER SERVICE RETIREMENT
General and Safety Members

Age	Male	Female	Age	Male	Female
50	31.87	35.19	80	8.98	10.49
51	30.94	34.24	81	8.46	9.88
52	30.01	33.29	82	7.97	9.30
53	29.09	32.34	83	7.51	8.74
54	28.18	31.40	84	7.07	8.20
55	27.28	30.47	85	6.65	7.68
56	26.38	29.53	86	6.24	7.18
57	25.49	28.61	87	5.86	6.71
58	24.61	27.68	88	5.48	6.25
59	23.74	26.77	89	5.12	5.83
60	22.88	25.86	90	4.78	5.42
61	22.04	24.97	91	4.45	5.05
62	21.20	24.09	92	4.15	4.70
63	20.38	23.22	93	3.87	4.37
64	19.57	22.36	94	3.61	4.07
65	18.78	21.52	95	3.37	3.79
66	18.01	20.69	96	3.15	3.53
67	17.26	19.88	97	2.95	3.28
68	16.53	19.09	98	2.77	3.06
69	15.81	18.30	99	2.61	2.85
70	15.11	17.53	100	2.46	2.65
71	14.43	16.77	101	2.33	2.48
72	13.77	16.01	102	2.21	2.31
73	13.11	15.26	103	2.09	2.16
74	12.48	14.53	104	1.98	2.02
75	11.85	13.81	105	1.87	1.89
76	11.25	13.11	106	1.77	1.78
77	10.66	12.43	107	1.68	1.69
78	10.08	11.76	108	1.61	1.62
79	9.52	11.11	109	1.55	1.56
			110	1.50	1.51

Males and Safety: 1994 GAM Table with a 2 year setback
 Females: 1994 GAF Table with a 1 year setback

YEARS OF LIFE EXPECTANCY AFTER DISABILITY RETIREMENT
General Members

<u>Age</u>	<u>Male & Female</u>	<u>Age</u>	<u>Male & Female</u>	<u>Age</u>	<u>Male & Female</u>
20	41.73	50	22.56	80	8.28
21	40.73	51	22.06	81	7.83
22	39.73	52	21.57	82	7.41
23	38.73	53	21.08	83	7.00
24	37.98	54	20.59	84	6.63
25	37.26	55	20.11	85	6.27
26	36.56	56	19.63	86	5.94
27	35.87	57	19.16	87	5.63
28	35.19	58	18.68	88	5.34
29	34.53	59	18.21	89	5.06
30	33.87	60	17.75	90	4.80
31	33.23	61	17.29	91	4.55
32	32.60	62	16.83	92	4.31
33	31.98	63	16.37	93	4.09
34	31.37	64	15.91	94	3.87
35	30.76	65	15.45	95	3.66
36	30.17	66	14.99	96	3.46
37	29.58	67	14.53	97	3.26
38	29.00	68	14.07	98	3.07
39	28.43	69	13.60	99	2.89
40	27.87	70	13.13	100	2.71
41	27.31	71	12.66	101	2.54
42	26.76	72	12.18	102	2.37
43	26.21	73	11.70	103	2.20
44	25.67	74	11.21	104	2.04
45	25.14	75	10.72	105	1.88
46	24.61	76	10.22	106	1.72
47	24.09	77	9.73	107	1.55
48	23.57	78	9.24	108	1.38
49	23.06	79	8.76	109	1.21
				110	1.04

1981 General Disability Table with a 3 Year Setback

YEARS OF LIFE EXPECTANCY AFTER DISABILITY RETIREMENT
Safety Members

<u>Age</u>	<u>Male & Female</u>	<u>Age</u>	<u>Male & Female</u>	<u>Age</u>	<u>Male & Female</u>
20	49.29	50	23.59	80	7.00
21	48.39	51	22.80	81	6.63
22	47.48	52	22.03	82	6.27
23	46.58	53	21.26	83	5.94
24	45.68	54	20.50	84	5.63
25	44.79	55	19.77	85	5.34
26	43.89	56	19.06	86	5.06
27	43.01	57	18.40	87	4.80
28	42.12	58	17.78	88	4.55
29	41.24	59	17.20	89	4.31
30	40.36	60	16.64	90	4.09
31	39.48	61	16.11	91	3.87
32	38.61	62	15.59	92	3.66
33	37.74	63	15.08	93	3.46
34	36.88	64	14.58	94	3.26
35	36.02	65	14.09	95	3.07
36	35.16	66	13.61	96	2.89
37	34.31	67	13.13	97	2.71
38	33.45	68	12.66	98	2.54
39	32.61	69	12.18	99	2.37
40	31.77	70	11.70	100	2.20
41	30.93	71	11.21	101	2.04
42	30.09	72	10.72	102	1.88
43	29.26	73	10.22	103	1.72
44	28.43	74	9.73	104	1.55
45	27.61	75	9.24	105	1.38
46	26.80	76	8.76	106	1.21
47	25.98	77	8.28	107	1.04
48	25.18	78	7.83	108	0.88
49	24.38	79	7.41	109	0.71
				110	0.50

1981 Safety Disability Table with no Setback

APPENDIX C

SUMMARY OF MEMBERSHIP AND BENEFIT STATISTICS

SUMMARY OF MEMBERSHIP AND BENEFIT STATISTICS

Active General Members

	<u>November 30, 2003*</u>	<u>November 30, 2002*</u>	<u>Percent Change</u>
1. General Tier 1			
A. Number	1,775	1,855	(4.3%)
B. Average Age	52.78	52.14	1.2%
C. Average Years of Service	22.22	21.32	4.2%
D. Annual Salary			
i. Total	\$115,457,239	\$114,781,384	0.6%
ii. Average	\$65,046	\$61,877	5.1%
2. General Tier 2			
A. Number	8,064	7,647	5.5%
B. Average Age	43.49	43.09	0.9%
C. Average Years of Service	6.30	6.05	4.1%
D. Annual Salary			
i. Total	\$421,788,316	\$383,518,137	10.0%
ii. Average	\$52,305	\$50,153	4.3%
3. General Total			
A. Number	9,839	9,502	3.5%
B. Average Age	45.17	44.86	0.7%
C. Average Years of Service	9.17	9.03	1.6%
D. Annual Salary			
i. Total	\$537,245,555	\$498,299,521	7.8%
ii. Average	\$54,604	\$52,442	4.1%

Active Safety Members

	<u>November 30, 2003*</u>	<u>November 30, 2002*</u>	<u>Percent Change</u>
1. Safety Tier 1			
A. Number	346	373	(7.2%)
B. Average Age	51.11	50.43	1.3%
C. Average Years of Service	23.40	22.33	4.8%
D. Annual Salary			
i. Total	\$29,793,430	\$28,299,966	5.3%
ii. Average	\$86,108	\$75,871	13.5%
2. Safety Tier 2			
A. Number	1,153	1,099	4.9%
B. Average Age	39.07	38.52	1.4%
C. Average Years of Service	7.39	6.96	6.2%
D. Annual Salary			
i. Total	\$73,738,321	\$63,792,648	15.6%
ii. Average	\$63,953	\$58,046	10.2%
3. Safety Total			
A. Number	1,499	1,472	1.8%
B. Average Age	41.85	41.54	0.7%
C. Average Years of Service	11.09	10.85	2.1%
D. Annual Salary			
i. Total	\$103,531,751	\$92,092,614	12.4%
ii. Average	\$69,067	\$62,563	10.4%

* Service and Salary projected to December 31, 2001 and December 31, 2002

RETIRED AND INACTIVE VESTED MEMBERS

	<u>November 30, 2002</u>	<u>November 30, 2001</u>	<u>Percent Change</u>
Retired Members			
A. Service Retirement			
i. Number	4,481	4,443	0.9%
ii. Annual Allowance			
Basic Only	\$82,721,678	\$77,819,944	6.3%
COLA	\$27,025,690	24,838,053	8.8%
Total	\$109,747,368	\$102,657,997	6.9%
Average Monthly Amount	\$2,041	\$1,925	6.0%
B. Disability Retirement			
i. Number	535	511	4.7%
ii. Annual Allowance			
Basic Only	\$9,540,646	\$8,800,266	8.4%
COLA	2,241,082	2,013,020	11.3%
Total	\$11,781,729	\$10,813,286	9.0%
Average Monthly Amount	\$1,835	\$1,763	4.1%
C. Beneficiaries			
i. Number	980	913	7.3%
ii. Annual Allowance			
Basic Only	\$7,550,165	\$6,576,312	14.8%
COLA	4,617,487	4,038,493	14.3%
Total	\$12,167,652	\$10,614,805	14.6%
Average Monthly Amount	\$1,035	\$969	6.8%
Inactive Vested Members			
A. Number	1,141	1,025	11.3%

**AVERAGE ANNUAL SALARY AND MEMBERSHIP DISTRIBUTION
AS OF NOVEMBER 30, 2002 ***

MALES AND FEMALES

**ALAMEDA COUNTY - GENERAL TIER 1
ACTIVE MEMBERS**

Age Group	YEARS OF SERVICE									TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
0-19											
20-24	1										1
	29,829										29,829
25-29	9										9
	33,342										33,342
30-34	13	1									14
	35,748	46,919									36,546
35-39	8	5	3	5	2						23
	39,165	35,344	54,478	31,433	64,276						40,834
40-44	15	6	4	23	43	1					92
	42,265	48,939	56,605	52,204	55,326	88,702					52,417
45-49	17	11	30	76	152	57	9				352
	47,888	48,193	60,496	58,083	63,585	62,275	61,686				60,634
50-54	13	10	26	89	215	150	79	2			584
	47,639	69,511	56,012	63,324	64,932	75,280	64,147	52,855			66,493
55-59	7	4	18	51	145	118	109	21	1		474
	59,663	58,516	49,483	57,375	68,855	81,010	74,925	64,733	159,077		71,091
60-64	1	2	8	19	51	43	41	18			183
	29,829	67,453	58,009	58,043	60,759	71,753	76,029	88,428			68,987
65-69	1		2	1	10	3	8	6			31
	39,810		74,248	55,075	50,486	51,639	51,547	81,607			58,231
70-74			1		3	1	1	2			8
			41,424		38,632	63,348	44,838	48,060			45,203
75+					2	1	1				4
					43,298	55,598	48,036				47,557
Total	85	39	92	264	623	374	248	49	1		1,775
	43,090	54,140	56,584	58,682	64,082	74,462	70,210	74,338	159,077		65,046

Total Salary	\$115,457,239
Average Age	52.78
Average Service	22.22

* Age and service projected to December 31, 2002.

**AVERAGE ANNUAL SALARY AND MEMBERSHIP DISTRIBUTION
AS OF NOVEMBER 30, 2002***

MALES AND FEMALES

**ALAMEDA COUNTY - GENERAL TIER 2
ACTIVE MEMBERS**

Age Group	YEARS OF SERVICE									TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19	2									2
	31,968									31,968
20-24	185									185
	33,933									33,933
25-29	557	44								601
	40,300	42,186								40,438
30-34	751	193	63	1						1,008
	45,439	55,755	45,398	36,448						47,402
35-39	609	240	229	59						1,137
	45,917	58,448	54,025	50,534						50,435
40-44	607	239	319	162						1,327
	48,027	54,952	60,336	61,176						53,838
45-49	558	223	355	194	5	1				1,336
	49,746	57,008	58,610	63,550	83,311	57,965				55,450
50-54	472	215	315	208	3	1	1			1,215
	51,616	58,835	58,911	65,669	82,292	58,176	81,263			57,296
55-59	275	164	221	127	10	3	1			801
	53,289	58,573	56,781	59,522	86,749	54,561	62,265			56,756
60-64	92	66	112	68			1			339
	53,985	58,517	57,624	58,584			92,398			57,105
65-69	25	15	22	21	1	1				85
	57,956	51,945	59,739	47,438	55,625	45,562				54,585
70-74	5	5	4	3						17
	47,953	52,014	47,993	79,874						54,790
75+	4	2	5							11
	54,419	39,155	38,205							44,274
Total	4,142	1,406	1,645	843	19	6	3			8,064
	46,759	56,704	57,472	61,323	83,502	54,231	78,642			52,305

Total Salary	\$421,788,316
Average Age	43.49
Average Service	6.3

* Age and service projected to December 31, 2002.

**AVERAGE ANNUAL SALARY AND MEMBERSHIP DISTRIBUTION
AS OF NOVEMBER 30, 2002***

MALES AND FEMALES

**ALAMEDA COUNTY - SAFETY TIER 1
ACTIVE MEMBERS**

Age Group	YEARS OF SERVICE									TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19										
20-24										
25-29										
30-34										
35-39										
40-44		1		15	20	1				37
		93,231		83,744	88,820	87,769				86,853
45-49	1	3	2	15	52	13		1		87
	62,775	63,745	94,271	77,400	82,926	91,890		79,958		82,647
50-54	1	1	1	6	46	68		23		146
	100,050	80,426	65,422	79,163	80,511	86,390		108,711		87,666
55-59		1	2	11	13	22		13	2	64
		98,622	65,426	58,171	81,315	94,607		107,301	117,842	88,100
60-64			1	2	1	3		1		8
			85,578	57,382	74,249	90,849		135,270		85,301
65-69			1		1				2	4
			62,909		81,311				62,663	67,387
70-74										
75+										
Total	2	6	7	49	133	107	38	4		346
	81,413	77,252	76,186	74,424	82,742	88,886	108,171	90,253		86,108

Total Salary	\$29,793,430
Average Age	51.11
Average Service	23.4

* Age and service projected to December 31, 2002.

**AVERAGE ANNUAL SALARY AND MEMBERSHIP DISTRIBUTION
AS OF NOVEMBER 30, 2002***

MALES AND FEMALES

**ALAMEDA COUNTY - SAFETY TIER 2
ACTIVE MEMBERS**

Age Group	YEARS OF SERVICE									TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19										
20-24	22 47,776									22 47,776
25-29	147 47,169	18 63,913								165 48,996
30-34	138 50,649	80 66,612	1 78,067							219 56,606
35-39	98 54,887	75 67,119	46 74,021	26 81,835						245 65,084
40-44	38 55,433	32 70,341	58 72,542	76 79,362						204 71,550
45-49	17 53,491	25 67,352	32 76,878	49 74,397						123 70,721
50-54	21 65,534	13 71,642	26 71,061	26 74,190		1 88,717				87 70,951
55-59	16 71,809	15 77,845	17 75,224	13 77,228	2 55,480		1 64,761			64 74,611
60-64	3 89,631	7 83,261	7 70,275	5 58,558						22 74,383
60+		1 168,361								1 168,361
Total	500 52,327	266 68,790	187 73,630	196 77,773	2 55,480	1 88,717	1 64,761			1,153 63,953

Total Salary	\$73,738,321
Average Age	39.07
Average Service	7.39

* Age and service projected to December 31, 2002.

**AVERAGE ANNUAL BENEFIT AND MEMBERSHIP DISTRIBUTION
OF RETIRED GENERAL MEMBERS AND BENEFICIARIES**

MALES AND FEMALES

Age Group	YEARS OF RETIREMENT									TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
0-19											
20-24	2	2								4	
	11,790	12,199								11,995	
25-29	1									1	
	18,490									18,490	
30-34	2	1								3	
	19,498	8,332								15,776	
35-39	10	7								17	
	18,884	16,498								17,901	
40-44	18	12				1				31	
	19,969	18,124				2,860				18,702	
45-49	21	11	4	2	1					39	
	19,673	14,188	15,764	5,571	2,370					16,558	
50-54	131	23	5	2	1					162	
	16,720	18,333	13,853	8,077	19,826					16,773	
55-59	261	107	10	6	4	1		1		390	
	27,710	18,164	16,381	12,849	13,014	4,904		3,511		24,300	
60-64	336	198	77	9	3	1				624	
	32,288	24,191	16,721	16,681	13,660	7,596				27,443	
65-69	265	309	163	79	7	5		5	1	834	
	28,534	29,031	20,091	10,176	7,887	9,534		5,079	5,601	24,874	
70-74	104	236	288	145	114	13		10		910	
	25,087	29,098	27,508	16,739	9,890	7,424		6,125		23,199	
75-79	64	97	210	262	178	79		9	2	1	902
	15,030	19,707	22,402	20,104	11,812	7,188		6,587	10,767	6,908	17,299
80-84	41	63	70	158	251	105		8	6	1	703
	13,183	11,777	19,814	18,464	15,996	9,393		8,618	4,708	6,446	15,209
85-89	19	30	23	27	123	109		42	3	1	377
	6,446	9,884	10,906	11,012	16,846	12,415		6,078	10,310	6,561	12,428
90+	31	22	15	16	31	68		42	32	4	261
	5,809	8,131	8,435	9,346	11,257	9,612		9,619	4,684	4,664	8,468
Total	1,306	1,118	865	706	713	382		117	44	7	5,258
	25,489	23,831	22,254	17,163	13,796	9,740		7,501	5,368	5,510	20,162

Total Retired Benefit	\$106,009,121
Average Age	72.08
Average Years Retired	12.27

* Age and years of retirement projected to December 31, 2002

AVERAGE ANNUAL BENEFIT AND MEMBERSHIP DISTRIBUTION

MALES AND FEMALES

ALAMEDA COUNTY - SAFETY RETIREES AND BENEFICIARIES

Age Group	YEARS OF RETIREMENT									TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19	4			1						5
	3,195			7,531						4,062
20-24										
25-29										
30-34	2									2
	27,294									27,294
35-39	6	2	1							9
	29,204	17,723	18,528							25,467
40-44	9	7								16
	29,252	31,635								30,294
45-49	10	6	7							23
	31,605	25,212	31,485							29,901
50-54	41	8	7	2		2				60
	33,422	28,935	24,919	25,424		19,716				31,108
55-59	115	32	17	6	2					172
	55,324	33,602	23,926	25,963	20,414					46,750
60-64	46	73	30	4	4	3		2		162
	40,986	45,065	36,264	21,995	21,198	17,279		8,232		40,149
65-69	14	42	41	6	2	2				107
	30,624	45,382	45,370	32,318	18,099	18,210				41,696
70-74	4	4	27	22	6	1		2	1	67
	26,557	45,710	40,982	46,260	26,200	18,611		9,803	13,556	39,139
75-79	3	1	3	5	12	20				44
	18,550	22,027	15,054	42,521	38,259	22,264				28,178
80-84	6	3	3	1	5	12		5		35
	18,739	15,030	18,065	125,256	37,513	21,119		17,220		24,687
85-89	2	3	2	1		7		7		22
	10,275	11,278	11,546	14,654		18,345		16,839		15,383
90+	3	5	1	1		1		3		14
	43,776	10,420	16,858	8,699		7,051		19,132		19,531
Total	265	186	139	49	31	48		19	1	738
	42,622	38,960	36,072	38,265	31,151	20,427		15,655	13,556	37,517

Total Retired Benefit	\$27,687,628
Average Age	63.07
Average Years Retired	9.47

* Age and years of retirement projected to December 31, 2002

**SUMMARY OF MONTHLY ALLOWANCES BEING PAID
AS OF NOVEMBER 30, 2002**

General Members				
Service	Monthly Allowance			
	Number	Basic	Cost of Living	Total
Unmodified	3,694	\$ 5,135,019	\$ 1,767,939	\$ 6,902,958
Option 1	104	121,278	44,683	165,961
Option 2, 3 & 4	192	236,123	66,118	302,241
Total	3,990	\$ 5,492,421	\$ 1,878,739	\$ 7,371,160
Ordinary Disability				
Unmodified	133	\$ 99,165	\$ 36,021	\$ 135,186
Option 1	9	4,778	2,924	7,702
Option 2, 3 & 4	0	0	0	0
Total	142	\$ 103,943	\$ 38,945	\$ 142,888
Duty Disability				
Unmodified	250	\$ 397,193	\$ 75,450	\$ 472,643
Option 1	8	8,579	1,952	10,531
Option 2, 3 & 4	1	2,220	44	2,264
Total	259	\$ 407,992	\$ 77,446	\$ 485,438
Beneficiaries				
Ex-Spouse	62	\$ 38,661	\$ 12,189	\$ 50,850
Death	805	474,311	309,447	783,758
Total	867	\$ 512,972	\$ 321,636	\$ 834,607
Total General	5,258	\$ 6,517,328	\$ 2,316,765	\$ 8,834,093

Safety Members				
Service Retirement	Monthly Allowance			
	Number	Basic	Cost of Living	Total
Unmodified	462	\$ 1,338,361	\$ 360,733	\$ 1,699,094
Option 1	2	4,267	1,730	5,997
Option 2, 3 & 4	27	58,424	10,939	69,363
Total	491	\$ 1,401,052	\$ 373,402	\$ 1,774,454
Ordinary Disability				
Unmodified	4	\$ 3,995	\$ 537	\$ 4,532
Option 1	0	0	0	0
Option 2, 3 & 4	0	0	0	0
Total	4	\$ 3,995	\$ 537	\$ 4,532
Duty Disability				
Unmodified	123	\$ 266,033	\$ 66,295	\$ 332,328
Option 1	4	8,329	1,035	9,364
Option 2, 3 & 4	3	4,761	2,499	7,260
Total	130	\$ 279,123	\$ 69,830	\$ 348,953
Beneficiaries				
Ex-Spouse	23	\$ 29,288	\$ 5,197	\$ 34,485
Death	90	86,921	57,958	144,879
Total	113	\$ 116,209	\$ 63,155	\$ 179,364
Total Safety	738	\$ 1,800,379	\$ 506,923	\$ 2,307,302

APPENDIX D

MEMBERS' CONTRIBUTION RATES

GENERAL MEMBER CONTRIBUTION RATES

GENERAL MEMBERS' CONTRIBUTION RATES

Section 31676.12 (Tier 1) and 31676.1 (Tier 2)

ENTRY AGE	Basic				COL *				Basic and COL			
	First \$161.00 of Biweekly Compensation		Excess of Biweekly Compensation Over \$161.00		First \$161.00 of Biweekly Compensation		Excess of Biweekly Compensation Over \$161.00		First \$161.00 of Biweekly Compensation		Excess of Biweekly Compensation Over \$161.00	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
16	5.14%	3.86%	7.71%	5.79%	1.78%	.86%	2.67%	1.29%	6.92%	4.72%	10.38%	7.08%
17	5.14%	3.86%	7.71%	5.79%	1.78%	.86%	2.67%	1.29%	6.92%	4.72%	10.38%	7.08%
18	5.14%	3.86%	7.71%	5.79%	1.78%	.86%	2.67%	1.29%	6.92%	4.72%	10.38%	7.08%
19	5.14%	3.86%	7.71%	5.79%	1.78%	.86%	2.67%	1.29%	6.92%	4.72%	10.38%	7.08%
20	5.14%	3.86%	7.71%	5.79%	1.78%	.86%	2.67%	1.29%	6.92%	4.72%	10.38%	7.08%
21	5.16%	3.87%	7.73%	5.81%	1.79%	.86%	2.68%	1.29%	6.95%	4.73%	10.41%	7.10%
22	5.17%	3.89%	7.76%	5.83%	1.79%	.86%	2.69%	1.30%	6.96%	4.75%	10.45%	7.13%
23	5.19%	3.90%	7.79%	5.85%	1.80%	.87%	2.70%	1.30%	6.99%	4.77%	10.49%	7.15%
24	5.22%	3.92%	7.83%	5.88%	1.81%	.87%	2.71%	1.31%	7.03%	4.79%	10.54%	7.19%
25	5.24%	3.94%	7.86%	5.91%	1.82%	.88%	2.73%	1.31%	7.06%	4.82%	10.59%	7.22%
26	5.27%	3.96%	7.90%	5.94%	1.83%	.88%	2.74%	1.32%	7.10%	4.84%	10.64%	7.26%
27	5.30%	3.98%	7.95%	5.97%	1.84%	.88%	2.75%	1.33%	7.14%	4.86%	10.70%	7.30%
28	5.33%	4.00%	8.00%	6.01%	1.85%	.89%	2.77%	1.33%	7.18%	4.89%	10.77%	7.34%
29	5.36%	4.03%	8.05%	6.05%	1.86%	.90%	2.79%	1.34%	7.22%	4.93%	10.84%	7.39%
30	5.40%	4.06%	8.10%	6.09%	1.87%	.90%	2.81%	1.35%	7.27%	4.96%	10.91%	7.44%
31	5.44%	4.09%	8.16%	6.13%	1.89%	.91%	2.83%	1.36%	7.33%	5.00%	10.99%	7.49%
32	5.48%	4.12%	8.22%	6.17%	1.90%	.92%	2.85%	1.37%	7.38%	5.04%	11.07%	7.54%
33	5.52%	4.15%	8.28%	6.22%	1.91%	.92%	2.87%	1.38%	7.43%	5.07%	11.15%	7.60%
34	5.56%	4.18%	8.34%	6.27%	1.93%	.93%	2.89%	1.39%	7.49%	5.11%	11.23%	7.66%
35	5.61%	4.21%	8.41%	6.32%	1.94%	.94%	2.91%	1.40%	7.55%	5.15%	11.32%	7.72%
36	5.65%	4.25%	8.48%	6.37%	1.96%	.94%	2.94%	1.42%	7.61%	5.19%	11.42%	7.79%
37	5.70%	4.28%	8.55%	6.43%	1.98%	.95%	2.96%	1.43%	7.68%	5.23%	11.51%	7.86%
38	5.75%	4.32%	8.62%	6.48%	1.99%	.96%	2.99%	1.44%	7.74%	5.28%	11.61%	7.92%
39	5.80%	4.36%	8.70%	6.54%	2.01%	.97%	3.01%	1.45%	7.81%	5.33%	11.71%	7.99%
40	5.85%	4.40%	8.78%	6.60%	2.03%	.98%	3.04%	1.47%	7.88%	5.38%	11.82%	8.07%
41	5.90%	4.44%	8.86%	6.66%	2.04%	.99%	3.07%	1.48%	7.94%	5.43%	11.93%	8.14%
42	5.96%	4.48%	8.94%	6.72%	2.07%	1.00%	3.10%	1.49%	8.03%	5.48%	12.04%	8.21%
43	6.02%	4.53%	9.02%	6.79%	2.09%	1.01%	3.13%	1.51%	8.11%	5.54%	12.15%	8.30%
44	6.07%	4.57%	9.11%	6.86%	2.10%	1.02%	3.16%	1.52%	8.17%	5.59%	12.27%	8.38%
45	6.13%	4.62%	9.20%	6.93%	2.12%	1.03%	3.19%	1.54%	8.25%	5.65%	12.39%	8.47%
46	6.19%	4.66%	9.29%	7.00%	2.15%	1.04%	3.22%	1.55%	8.34%	5.70%	12.51%	8.55%
47	6.26%	4.71%	9.38%	7.07%	2.17%	1.05%	3.25%	1.57%	8.43%	5.76%	12.63%	8.64%
48	6.32%	4.76%	9.48%	7.14%	2.19%	1.06%	3.29%	1.59%	8.51%	5.82%	12.77%	8.73%
49	6.38%	4.81%	9.57%	7.22%	2.21%	1.07%	3.32%	1.60%	8.59%	5.88%	12.89%	8.82%
50	6.45%	4.86%	9.67%	7.29%	2.24%	1.08%	3.35%	1.62%	8.69%	5.94%	13.02%	8.91%
51	6.51%	4.91%	9.76%	7.37%	2.26%	1.09%	3.38%	1.64%	8.77%	6.00%	13.14%	9.01%
52	6.57%	4.96%	9.86%	7.44%	2.28%	1.10%	3.42%	1.65%	8.85%	6.06%	13.28%	9.09%
53	6.63%	5.02%	9.95%	7.52%	2.30%	1.12%	3.45%	1.67%	8.93%	6.14%	13.40%	9.19%
54	6.70%	5.07%	10.04%	7.60%	2.32%	1.13%	3.48%	1.69%	9.02%	6.20%	13.52%	9.29%
55	6.76%	5.12%	10.13%	7.68%	2.34%	1.14%	3.51%	1.71%	9.10%	6.26%	13.64%	9.39%
56	6.81%	5.18%	10.21%	7.76%	2.36%	1.15%	3.54%	1.72%	9.17%	6.33%	13.75%	9.48%
57	6.84%	5.22%	10.26%	7.84%	2.37%	1.16%	3.56%	1.74%	9.21%	6.38%	13.82%	9.58%
58	6.83%	5.40%	10.24%	8.10%	2.37%	1.20%	3.55%	1.80%	9.20%	6.60%	13.79%	9.90%
59 & Over	6.64%	5.54%	9.96%	8.30%	2.30%	1.23%	3.45%	1.84%	8.94%	6.77%	13.41%	10.14%

* COL Loading:
 34.66% of Basic Rates for Tier 1 and
 22.22% of Basic Rates for Tier 2

Mortality
 GA94 Male Set Back 4 Years

SAFETY MEMBERS' CONTRIBUTION RATES

Section 31664 (Tier 1 and Tier 2)

ENTRY AGE	Basic				COL *				Basic and COL			
	First \$161.00 of Biweekly Compensation		Excess of Biweekly Compensation Over \$161.00		First \$161.00 of Biweekly Compensation		Excess of Biweekly Compensation Over \$161.00		First \$161.00 of Biweekly Compensation		Excess of Biweekly Compensation Over \$161.00	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
18	6.20%	5.45%	9.30%	8.18%	2.58%	1.42%	3.88%	2.12%	8.78%	6.87%	13.18%	10.30%
19	6.20%	5.45%	9.30%	8.18%	2.58%	1.42%	3.88%	2.12%	8.78%	6.87%	13.18%	10.30%
20	6.20%	5.45%	9.30%	8.18%	2.58%	1.42%	3.88%	2.12%	8.78%	6.87%	13.18%	10.30%
21	6.22%	5.47%	9.33%	8.20%	2.59%	1.42%	3.89%	2.13%	8.81%	6.89%	13.22%	10.33%
22	6.24%	5.49%	9.36%	8.23%	2.60%	1.43%	3.90%	2.14%	8.84%	6.92%	13.26%	10.37%
23	6.27%	5.51%	9.40%	8.27%	2.61%	1.43%	3.92%	2.15%	8.88%	6.94%	13.32%	10.42%
24	6.29%	5.54%	9.44%	8.30%	2.62%	1.44%	3.93%	2.16%	8.91%	6.98%	13.37%	10.46%
25	6.33%	5.56%	9.49%	8.35%	2.64%	1.44%	3.95%	2.17%	8.97%	7.00%	13.44%	10.52%
26	6.36%	5.60%	9.54%	8.39%	2.65%	1.45%	3.98%	2.18%	9.01%	7.05%	13.52%	10.57%
27	6.40%	5.63%	9.60%	8.45%	2.67%	1.46%	4.00%	2.19%	9.07%	7.09%	13.60%	10.64%
28	6.44%	5.67%	9.66%	8.50%	2.68%	1.47%	4.03%	2.21%	9.12%	7.14%	13.69%	10.71%
29	6.49%	5.71%	9.73%	8.57%	2.70%	1.48%	4.06%	2.22%	9.19%	7.19%	13.79%	10.79%
30	6.54%	5.76%	9.81%	8.64%	2.73%	1.50%	4.09%	2.24%	9.27%	7.26%	13.90%	10.88%
31	6.60%	5.81%	9.90%	8.71%	2.75%	1.51%	4.12%	2.26%	9.35%	7.32%	14.02%	10.97%
32	6.66%	5.86%	9.99%	8.79%	2.78%	1.52%	4.16%	2.28%	9.44%	7.38%	14.15%	11.07%
33	6.72%	5.92%	10.08%	8.88%	2.80%	1.54%	4.20%	2.31%	9.52%	7.46%	14.28%	11.19%
34	6.79%	5.98%	10.18%	8.97%	2.83%	1.55%	4.24%	2.33%	9.62%	7.53%	14.42%	11.30%
35	6.86%	6.05%	10.29%	9.07%	2.86%	1.57%	4.29%	2.36%	9.72%	7.62%	14.58%	11.43%
36	6.93%	6.11%	10.40%	9.17%	2.89%	1.59%	4.33%	2.38%	9.82%	7.70%	14.73%	11.55%
37	7.01%	6.18%	10.51%	9.27%	2.92%	1.60%	4.38%	2.41%	9.93%	7.78%	14.89%	11.68%
38	7.08%	6.25%	10.63%	9.38%	2.95%	1.62%	4.43%	2.44%	10.03%	7.87%	15.06%	11.82%
39	7.16%	6.32%	10.74%	9.49%	2.98%	1.64%	4.48%	2.46%	10.14%	7.96%	15.22%	11.95%
40	7.24%	6.39%	10.85%	9.59%	3.02%	1.66%	4.52%	2.49%	10.26%	8.05%	15.37%	12.08%
41	7.31%	6.47%	10.96%	9.70%	3.05%	1.68%	4.57%	2.52%	10.36%	8.15%	15.53%	12.22%
42	7.38%	6.54%	11.07%	9.81%	3.08%	1.70%	4.61%	2.55%	10.46%	8.24%	15.68%	12.36%
43	7.45%	6.61%	11.18%	9.91%	3.10%	1.72%	4.66%	2.57%	10.55%	8.33%	15.84%	12.48%
44	7.52%	6.68%	11.28%	10.02%	3.13%	1.73%	4.70%	2.60%	10.65%	8.41%	15.98%	12.62%
45	7.58%	6.75%	11.36%	10.13%	3.16%	1.75%	4.74%	2.63%	10.74%	8.50%	16.10%	12.76%
46	7.62%	6.82%	11.43%	10.23%	3.18%	1.77%	4.76%	2.66%	10.80%	8.59%	16.19%	12.89%
47	7.64%	6.88%	11.46%	10.32%	3.18%	1.79%	4.77%	2.68%	10.82%	8.67%	16.23%	13.00%
48	7.59%	7.11%	11.38%	10.67%	3.16%	1.85%	4.74%	2.77%	10.75%	8.96%	16.12%	13.44%
49 & Over	7.29%	7.29%	10.93%	10.93%	3.04%	1.89%	4.56%	2.84%	10.33%	9.18%	15.49%	13.77%

* COL Loading:

41.68% of Basic Rates for Tier 1 and
25.97% of Basic Rates for Tier 2

Mortality

GA94 Male Set Back Two Years

APPENDIX E
CAFR ACTUARIAL SCHEDULES

CAFR ACTUARIAL SCHEDULES

Attachment A Schedule of Active Member Valuation Data

Schedule of Active Member Valuation Data						
Valuation Date	Plan Type	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay *	
12/31/1990	General	7,689	\$ 264,710,135	\$ 34,427	8.55%	
	Safety	1,298	54,927,313	42,317	11.75%	
	Total	8,987	\$ 319,637,448	\$ 35,567	9.00%	
12/31/1991	General	7,766	\$ 285,172,127	\$ 36,721	6.66%	
	Safety	1,203	56,369,693	46,858	10.73%	
	Total	8,969	\$ 341,541,820	\$ 38,080	7.07%	
12/31/1992	General	7,916	\$ 309,059,921	\$ 39,042	6.32%	
	Safety	1,172	58,467,579	49,887	6.46%	
	Total	9,088	\$ 367,527,500	\$ 40,441	6.20%	
12/31/1993	General	7,738	\$ 301,833,734	\$ 39,007	-0.09%	
	Safety	1,120	55,540,749	49,590	-0.60%	
	Total	8,858	\$ 357,374,483	\$ 40,345	-0.24%	
12/31/1994	General	7,933	\$ 310,459,574	\$ 39,135	0.33%	
	Safety	1,128	55,445,811	49,154	-0.88%	
	Total	9,061	\$ 365,905,385	\$ 40,382	0.09%	
12/31/1995	General	7,861	\$ 314,376,236	\$ 39,992	2.19%	
	Safety	1,196	59,227,940	49,522	0.75%	
	Total	9,057	\$ 373,604,176	\$ 41,250	2.15%	
12/31/1996	General	7,859	\$ 326,703,539	\$ 41,571	3.95%	
	Safety	1,195	62,992,218	52,713	6.44%	
	Total	9,054	\$ 389,695,757	\$ 43,041	4.34%	
12/31/1997	General	7,969	\$ 344,339,885	\$ 43,210	3.94%	
	Safety	1,278	68,705,274	53,760	1.99%	
	Total	9,247	\$ 413,045,159	\$ 44,668	3.78%	
12/31/1998	General	8,173	\$ 387,930,299	\$ 47,465	9.85%	
	Safety	1,326	74,534,770	56,210	4.56%	
	Total	9,499	\$ 462,465,069	\$ 48,686	8.99%	
12/31/1999	General	8,445	\$ 407,628,000	\$ 48,269	1.69%	
	Safety	1,414	80,358,000	56,830	1.10%	
	Total	9,859	\$ 487,986,000	\$ 49,497	1.67%	
12/31/2000	General	9,027	\$ 446,911,072	\$ 49,508	2.57%	
	Safety	1,429	85,394,052	59,758	5.15%	
	Total	10,456	\$ 532,305,124	\$ 50,909	2.85%	
11/30/2001**	General	9,502	\$ 498,299,521	\$ 52,442	5.92%	
	Safety	1,472	92,092,614	62,563	4.69%	
	Total	10,974	\$ 590,392,135	\$ 53,799	5.68%	
11/30/2002**	General	9,839	\$ 537,245,555	\$ 54,604	4.12%	
	Safety	1,499	103,531,751	69,067	10.40%	
	Total	11,338	\$ 640,777,306	\$ 56,516	5.05%	

* Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year, it does not reflect the average salary increases received by members who worked the full year.

** Salary projected to 12/31

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Attachment B
Retirees and Beneficiaries Added To and Removed From Retiree Payroll

Plan Year	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in	
	Number	Allowance (in 000's)	Number	Allowance (in 000's)	Number	Allowance (in 000's)	Retiree Allowance	Average Annual Allowance
1990	N/A*		N/A*		4,509	\$ 46,891	5.39%	\$ 10,399
1991	N/A*		N/A*		4,557	\$ 50,588	7.88%	\$ 11,101
1992	N/A*		N/A*		4,642	\$ 54,450	7.63%	\$ 11,730
1993	355		(121)		4,876	\$ 63,511	16.64%	\$ 13,025
1994	241		(191)		4,926	\$ 66,392	4.54%	\$ 13,478
1995	284		(190)		5,020	\$ 71,426	7.58%	\$ 14,228
1996	248		(157)		5,111	\$ 75,966	6.36%	\$ 14,863
1997	220		(129)		5,202	\$ 81,868	7.77%	\$ 15,738
1998	324		(146)		5,380	\$ 89,724	9.60%	\$ 16,677
1999	364		(139)		5,605	\$ 101,158	12.74%	\$ 18,048
2000	381		(287)		5,699	\$ 115,261	13.94%	\$ 20,225
2001	303	\$ 10,548	(135)	\$ (1,723)	5,867	\$ 124,086	7.66%	\$ 21,150
2002	335	\$ 12,671	(206)	\$ (3,060)	5,996	\$ 133,697	7.75%	\$ 22,298

* Not Available

** Includes data adjustments

Attachment C
Solvency Test
(amounts in thousands)

Valuation Date	Aggregate Accrued Liabilities for			Portion of Accrued Liabilities Covered by Reported Assets		
	Active Member Contributions	Retired/Vested Members	Active Members (Employer Financed Portion)	Active Member Contributions	Retired/Vested Members	Active Members (Employer Financed Portion)
12/31/1996	\$ 452,253	\$ 945,276	\$ 670,387	100%	100%	100%
12/31/1997	\$ 510,381	\$ 1,041,268	\$ 666,670	100%	100%	100%
12/31/1998	\$ 537,895	\$ 1,316,570	\$ 758,546	100%	100%	100%
12/31/1999	\$ 640,623	\$ 1,326,463	\$ 795,438	100%	100%	100%
12/31/2000	\$ 735,101	\$ 1,435,302	\$ 766,227	100%	100%	100%
12/31/2001	\$ 802,356	\$ 1,503,393	\$ 834,467	100%	100%	100%
12/31/2002	\$ 821,702	\$ 1,664,465	\$ 1,073,446	100%	100%	75%
		Total		Actuarial Value of Assets		
				2,113,009		
				2,313,787		
				2,830,437		
				2,997,932		
				3,169,178		
				3,321,794		
				3,294,053		

NOTES:

This exhibit includes actuarially funded liabilities and assets. The Supplemental Retirees Benefit Reserve and Reserve for Interest Fluctuation are not included.

Events affecting year to year comparability:

- 12/31/92 - Investment return assumption reduced from 8.50% to 8.25%; Inflation assumption dropped from 5.5% to 5%; changes to noneconomic assumptions;
- 12/31/93 - Investment return assumption reduced from 8.25% to 8%; Inflation assumption dropped from 5% to 4.75%; Golden handshake offered in 1993.
- 12/31/94 - Includes \$307,923 Pension Obligation Bond contribution made on 4/29/95.
- 12/31/95 - Inflation assumption dropped from 4.75% to 4.5%; changes to noneconomic assumptions; change in actuarial asset valuation methodology.
- 12/31/01 - Change in non-economic assumptions.
- 12/31/02 - Investment return assumption reduced from 8.25% to 8.00%; salary increase assumption increased from 5.6% to 5.9%; increase in terminal pay assumption; and implementation of 80% - 120% market value corridor.

Attachment D

Actuarial Analysis of Financial Experience
(Amounts in millions)

	2002	2001	2000	1999	1998	1997	1996
Prior Valuation Unfunded / (Prefunded) Actuarial Accrued Liability	\$ (182)	\$ (233)	\$ (235)	\$ (217)	\$ (95)	\$ (45)	\$ 267
Expected Increase from Prior Valuation						\$ (1)	\$ (261) *
Salary Increase Greater (Less) than Expected	\$ 17	\$ 10	\$ (5)	\$ 5	\$ 36	\$ (8)	\$ (3)
Asset Return Less (Greater) than Expected	\$ 207	\$ 34	\$ (5)	\$ 26	\$ (110)	\$ (61)	\$ (28)
Other Experience	\$ 20	\$ 13	\$ 12	\$ 12	\$ 6	\$ 10	\$ (14)
Ventura Litigation				\$ (69)	\$ 259		
Conversion of Sick Leave Service			\$ 8				
Actuarial Value of Assets Method Change					\$ (259)		
Economic Assumption Changes	\$ 190				\$ (54) **		
Noneconomic Assumption Changes	\$ 14	\$ 35					
Data Corrections		\$ (41)					
Dilution of Rate Credit from Surplus Assets						\$ 10	\$ (6)
Ending Unfunded / (Prefunded) Actuarial Accrued Liability	\$ 266	\$ (182)	\$ (233)	\$ (235)	\$ (217)	\$ (95)	\$ (45)

* Included a Pension Obligation Bond Credit of \$(283).

** \$30 million is the combined impact of changes in economic and non-economic assumptions in 1998.

Attachment E
SCHEDULE OF AVERAGE BENEFIT PAYMENTS

Years Since Retirement

Retirement Effective Dates 1/1/1992-12/1/2002	0-4	5-9	10-14	15-19	20-24	25-29	30 & OVER
Period 1/1/92-12/31/92:							
Average Monthly Benefit	\$1,634	\$1,185	\$881	\$391	\$566	\$401	\$377
Number of Active Retirants	893	895	1,109	922	484	218	121
Period 1/1/93-12/31/93:							
Average Monthly Benefit	\$1,804	\$1,420	\$956	\$768	\$584	\$432	\$379
Number of Active Retirants	837	1,108	1,034	967	556	236	138
Period 1/1/94-12/31/94:							
Average Monthly Benefit	\$1,793	\$1,463	\$1,065	\$823	\$623	\$473	\$196
Number of Active Retirants	898	1,052	965	1,039	600	245	127
Period 1/1/95-12/31/95:							
Average Monthly Benefit	\$1,758	\$1,494	\$1,111	\$878	\$716	\$550	\$425
Number of Active Retirants	1,110	1,132	928	979	553	210	100
Period 1/1/96-12/31/96:							
Average Monthly Benefit	\$1,670	\$1,564	\$1,181	\$954	\$758	\$616	\$428
Number of Active Retirants	1,110	1,126	912	959	612	245	110
Period 1/1/97-12/31/97:							
Average Monthly Benefit	\$1,956	\$1,739	\$1,303	\$972	\$778	\$600	\$431
Number of Active Retirants	1,100	999	845	1,021	728	331	178
Period 1/1/98-12/31/98:							
Average Monthly Benefit	\$1,918	\$1,978	\$1,373	\$1,052	\$815	\$684	\$451
Number of Active Retirants	1,047	1,173	817	995	790	363	195
Period 1/1/99-12/31/99:							
Average Monthly Benefit	\$2,226	\$1,971	\$1,635	\$1,136	\$897	\$692	\$475
Number of Active Retirants	1,195	950	1,028	933	823	446	230
Period 1/1/00-12/31/00:							
Average Monthly Benefit	\$2,394	\$2,439	\$1,810	\$1,342	\$1,000	\$770	\$512
Number of Active Retirants	1,304	1,023	964	872	862	441	233
Period 1/1/01-11/30/01:							
Average Monthly Benefit	\$2,261	\$2,047	\$1,951	\$1,455	\$1,092	\$861	\$597
Number of Active Retirants	1,569	1,203	991	774	751	403	176
Period 12/1/02-11/30/02:							
Average Monthly Benefit	\$2,365	\$2,166	\$2,014	\$1,544	\$1,210	\$911	\$649
Number of Active Retirants	1,571	1,304	1,004	755	744	430	188

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APPENDIX F

ASSUMPTION RECOMMENDATION DETAIL ANALYSIS

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Memo

To: **Actuarial Committee - ACERA**
Date: March 20, 2003
From: Andy Yeung, ASA; Marcia Chapman, FSA
Subject: **Actuarial Assumptions Used in 12/31/02 Valuation**

The assumptions and procedures that we reviewed as part of our 12/31/02 valuation are:

1. Actuarial interest rate assumption
2. Merit and longevity component of the salary increase assumption
3. Terminal pay assumptions
4. Pension obligation bond credits

1. Actuarial Interest Rate

- Short term actual investment return is impacted by market conditions and subject to:
 - 5-year smoothing process (but smoothed value cannot be greater than 120% of market value).
 - Market return for plan year 2002 was a negative 7.2%. As of 12/31/02, smoothed value was about 126% of market value. Losses over 120% of market value will be immediately recognized under the Retirement Board's policy.
 - The smoothed actuarial return during 2002 (after netting out the balance in the Contingency Reserve and marking down the actuarial value of assets to no greater than 120% of market value) was 1.08%. That was less than the assumed annual rate of return of 8.25%. The investment losses (relative to the 8.25% assumed return) that would have to be recognized in the 12/31/02 valuation were \$238 million.
- Long term investment return assumption is currently set at 8.25% per annum. This return assumption has been reviewed taking into account:
 - The Retirement Board's new target asset allocation.
 - The forward looking investment return for each asset class included in the Association's portfolio.

Development of Actuarial Interest Rate Assumption

Step 1: Review of Asset Allocation

- The following table provides the new target asset allocation and the real rate of return (net of inflation) anticipated by Mercer and Strategic Investment Solutions (SIS):

Asset Class	Target Allocation	Mercer Real Rate of Return Expectation	SIS Real Rate of Return Expectation
Domestic Equity – Large Cap	34.7%	5.8%	6.3%
Domestic Equity – Small Cap	4.3%	6.3%	7.2%
International Equity	22.0%	6.3%	6.7%
Domestic Bonds	30.0%	2.1%	2.5%
Real Estate	9.0%	5.2%	4.5%

- Commentary: Mercer's average real rate of return expectation for 12/31/02 is lower than the average expectation for 12/31/01 by about 0.5%.

Step 2: Development of Preliminary Interest Rate Assumption

- Using the Building Block Approach (a method consistent with what we have used during our tenure with the Association), we have arrived at the following preliminary investment return assumption. Please note that we have also included (for comparison purposes) factors we used in developing the 12/31/01 assumptions in the table below.

	12/02 Calculation	12/01 Calculation
Real Rate of Return	4.78%	5.31%
- Expense (See Attachment A for Average Expenses During 1998-2002)	-0.75%	-0.75%
- Risk Adjustment*	-1.22%	-1.07%
+ Inflation**	4.50%	4.50%
Investment Return***	7.31%	7.99%

- * Risk adjustment is the implicit risk margin built into the interest rate assumption reported by other California public retirement systems that participated in our assumption survey. The risk adjustment we used above has been adjusted so that it is reflective of the standard deviation of the Association's portfolio.

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** Tentative only for 12/02. We are still analyzing the active salary increases during 2002 and we will have to complete that analysis before we can finalize this assumption.

*** Investment return assumption adopted by the Board for 12/01 was 8.25%.

The risk adjustment calculated by Mercer for the last several years is provided below:

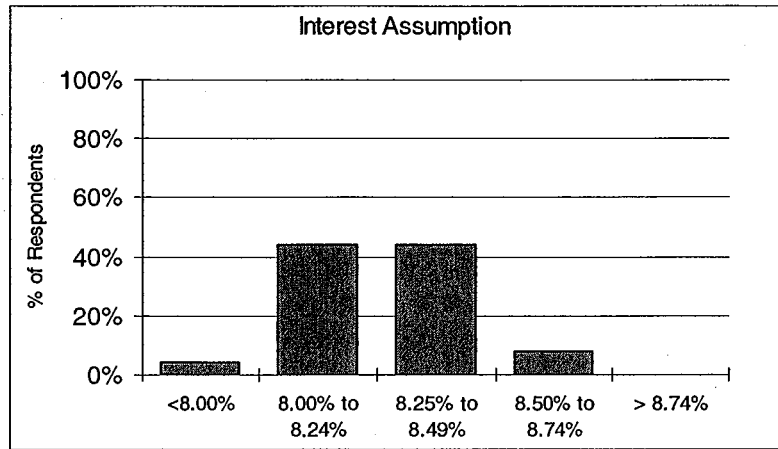
<u>Actuarial Valuation Date</u>	<u>Risk Adjustment</u>
12/31/96	1.25%
12/31/97	1.24%
12/31/98	0.99%
12/31/99	1.55%
12/31/00	1.37%

Step 3: Comparison With Other California Public Retirement Systems

- The following charts compare the interest rate assumptions adopted by 25 California public retirement systems and 15 1937 Act systems that responded to Mercer's 2001 survey.

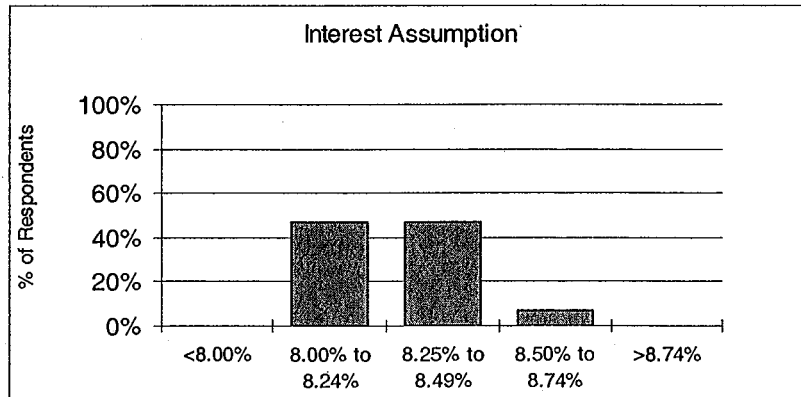
**Comparison of Economic Actuarial Assumptions
All Respondents
(based on 25 responses)**

Comparison of Economic Actuarial Assumptions



Average	8.14%
25th Percentile	8.00%
50th Percentile	8.25%
75th Percentile	8.25%

**1937 Act County Respondents
(based on 15 responses)**



Average	8.16%
25th Percentile	8.00%
50th Percentile	8.13%
75th Percentile	8.25%

Step 4: Other Relevant Data

a. Expected Return Calculation Using Mercer's New Profile Return Calculations Software

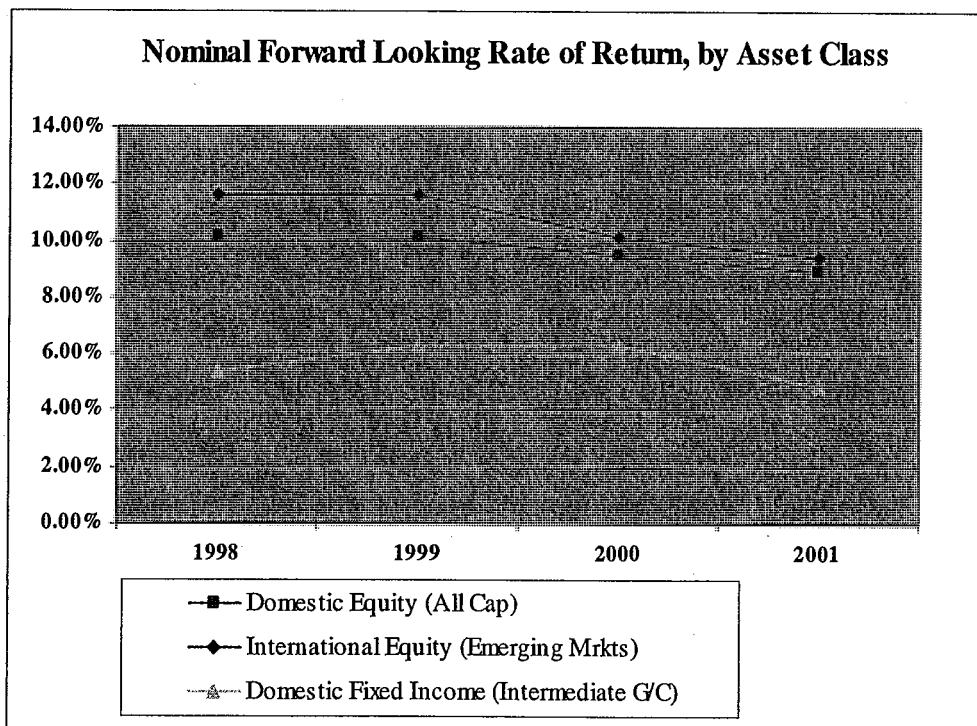
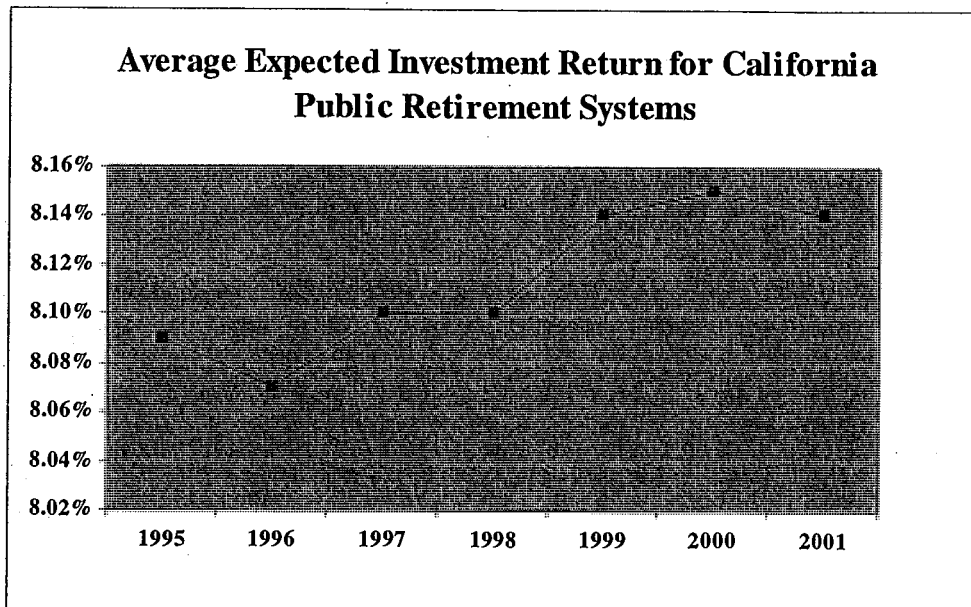
- We also ran the Association's portfolio through a new proprietary Mercer program that adjusts the expected rates of return based on the risk characteristics of each investment class, the correlation between expected returns for different asset classes and the underlying inflation rate.
- Using that program together with an expense assumption of 0.75%, produces a reasonable range of investment return assumptions from 6.01% to 8.09% with a median 7.05% expected return for the Association. The range provides returns from the 35th to the 65th percentile.
- Please note that the above percentile returns have not been adjusted to reflect that our inflation assumption of 4.5% for ACERA is higher than the 2.5% inflation assumption built into Mercer's portfolio return calculator.

b. SIS's Expected Return Calculation

- According to SIS, the long term expected return (without taking into account administrative and investment expenses and alphas from active management) is 8.21%. The return after netting out a 0.18% expected administrative expense is 8.03%.

c. Steps Taken By California Public Retirement Systems in Reaction to Lower Long Term Investment Return

- We have compared the change in the rates of return expectations adopted by California public retirement systems with the change in the long term rates of return expectation for different asset classes predicted by Mercer during the last 7 years.



- Commentary: There has been a movement in the survey toward lower investment return assumptions. However, the movement is still small.

Step 5: Development of final recommendation

- (i) Using the Building Block Approach, the calculated investment return is 7.31%.
- (ii) Using Mercer's New Profile Return Calculation Software, a reasonable range of investment return assumption is from 6.01% to 8.09%.
- (iii) SIS's expected investment return (after deducting administrative expense) is 8.03%.
- (iv) Other California systems have used an average investment return assumption of 8.14%. The assumption has been reduced over the last two years consistent with the reduction in the long term rates of return expectation for different asset classes predicted by Mercer.
- We recommend that the Board reduce the investment return assumption from 8.25% to 8.00%. Please note that even though there is a high likelihood that the short term actual market return will be less than the 8.00% return recommendation, the 80%-120% market value corridor that the Board has adopted for actuarial value of assets will cause those short term losses to be made up immediately by higher employer contributions.
- Since the 8% return recommendation is very close to the high end of the reasonable range of investment assumption, the employer should be made aware that if the long term expected investment return for the Association's portfolio were to deteriorate, there may be a need to reduce the investment return assumption again at the next valuation.

2. Salary Increase Assumption

- In our 12/31/01 triennial experience study, we recommended that the Board adopt new merit and longevity assumptions reflecting higher average annual salary increases granted by the employer.
- The recommended real salary adjustments would have increased the annual average real salary increase assumption from about 1.1% to 1.4%.
- The County was interested in reviewing the data which supported our recommendation and because a large volume of data was provided by the Association for our analysis, the Board decided to delay the adoption of our recommendation until the County was given sufficient time to finish their review.

- We had a few meetings with the Association and the County to explain our analysis. We understand that the County has found our analysis to be reasonable.
- We recommend to the Board that the higher merit and longevity assumptions be adopted for the 12/31/02 valuation.

3. Terminal Pay Assumptions

- Under the Ventura Settlement, the employers agreed to expand the definition of salary to include terminal pay (e.g. cash-in of unused vacation) as part of final average compensation. In order to estimate the impact of including terminal pay, we relied on compensation data collected in 1999 for 140 retirees who retired between October 1, 1997 and December 31, 1998.
- We raised our concern with the Board last year regarding the continued applicability of the assumptions we compiled from the 140 retirees reflecting past behavior. Our concern was based on the potential for members to bank their unused vacation as part of their retirement planning and hence receive a higher pension benefit than anticipated by our terminal pay assumptions.

We understand from our discussion with the Association that some employers have, through their MOU's, changed the amount of unused vacation time that can be cashed out by the members.

- We collected terminal pay data from 192 retirees who received a service retirement benefit between July 2001 (the date that terminal pay information was first separately identified in the Association's new Pension Gold system) and September 2002.

In the data, the Association also separately identified for us Safety members who cashed in their unused sick leave.

According to the Association, the data for Tier 2 members may be somewhat incomplete, as the Pension Gold database has not been populated with three full years worth of salary data necessary to ascertain the full impact of terminal pay on Tier 2 retirees.

- Based on the data collected for 192 retirees, we observed the following differences in actual terminal pay percentages versus what we assumed in the valuation:

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<u>Membership Category</u>	<u>Current Assumption</u>	<u>Number of Retirees Included in Current Analysis</u>	<u>Observed Vacation Cashout</u>	<u>Observed Sick Leave Cashout</u>
General Tier 1	5.6%	111	8.4%	0.0%
Safety Tier 1	5.9%	23	9.2%	1.9%
General Tier 2	1.5%	56	2.8%	0.0%
Safety Tier 2	1.5%	2	3.5%	0.0%

We recommend the following terminal pay assumptions for the 12/31/02 valuation:

<u>Membership Category</u>	<u>Recommended Terminal Pay Assumption</u>	
	<u>Service Retirement</u>	<u>Disability Retirement*</u>
General Tier 1	8.4%	7.0%
Safety Tier 1	11.1%	8.5%
General Tier 2	2.8%	2.8%
Safety Tier 2	2.8%	2.8%

* For General and Safety Tier 1 retirees, the terminal pay assumptions are calculated by taking the average of the current terminal pay assumptions and the observed terminal pay percentages. We are recommending a lower assumption for disabled retirees because they generally cannot plan ahead for their retirement and they tend to retire with fewer years of service.

4. Pension Obligation Bond Credit

- Favorable investment returns accumulated after the Pension Obligation Bonds were issued have been used as a credit to offset the County's Normal Cost contributions. The POB credits have been amortized over a shorter period (8 years as of 12/31/01) than the period used to amortize the Association's other actuarial gains/losses (17 years as of 12/31/01). This shorter period is based on the period of time over which the County is repaying the Bonds.
- Based on the results from the 12/31/01 valuation (assuming that the active member payroll grew at an annual rate of 4.5% during 12/31/01 and 12/31/02), the projected POB credits carried forward to 12/31/02 would be approximately \$206 million.
- The smoothed actuarial return during 2002 (after netting the balance in the Contingency Reserve and marking the actuarial value of assets to no greater than 120% of market value) was 1.08%. That was less than the assumed annual rate of return of 8.25%. The investment

losses (relative to the 8.25% assumed return) that would have to be recognized in the 12/31/02 valuation were \$238 million.

- We recommend that for the 12/31/02 valuation, the POB credits carried over from 12/31/01 (about \$206 million) be used to offset the investment losses during 1/1/02-12/31/02 (\$238 million). The net losses (\$32 million) would then be amortized over the Association's 16 year amortization schedule for actuarial gains/losses.

Note: Alameda County has asked that the POB credits be amortized over a 7 year period which coincides with the end of the bond repayments and the investment losses over a 16 year time period. We note that under the GASB accounting rules, this methodology would produce an Equivalent Single Amortization Period of more than the 30-year maximum acceptable amortization period.

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ATTACHMENT A

Analysis of ACERA Investment Expenses From 1998 To 2002 (All \$ in 1,000s)

	Calendar Year				Average 1998-2002
	1998	1999	2000	2001	
Average Market Value					
Market Value (1-1)	\$ 2,965,448	\$ 3,386,802	\$ 3,839,460	\$ 3,734,794	\$ 3,517,082
Market Value (12-31)	\$ 3,386,802	\$ 3,839,460	\$ 3,734,794	\$ 3,517,082	\$ 3,184,007
Average Market Value	\$ 3,176,125	\$ 3,613,131	\$ 3,787,127	\$ 3,625,938	\$ 3,350,545
Investment Expenses					
Total Fees & Investment Expenses	\$ 27,016	\$ 21,087	\$ 25,665	\$ 36,801	\$ 40,456
Security Lending Fees	\$ 10,226	\$ 2,880	\$ 5,491	\$ 3,738	\$ 3,399
Interest on Prepaid Contributions	\$ 2,025	\$ 1,728	\$ 261		
Reimbursable Real Estate Fees	\$ 1,109	\$ 2,461	\$ 3,987	\$ 4,774	\$ 5,321
Net Fees & Investment Expenses	\$ 13,656	\$ 14,018	\$ 15,926	\$ 28,289	\$ 31,736
Net Fees & Investment Expense (% of Average Market Value)	0.43%	0.39%	0.42%	0.78%	0.95%
Interest Expense From Leverage on Real Estate				\$ 5,410	\$ 5,342
Net Fees & Investment Expenses, Excluding Interest Expense From Leverage on Real Estate	\$ 13,656	\$ 14,018	\$ 15,926	\$ 22,879	\$ 26,394
Net Fees & Investment Expense, Excluding Interest Expense on Real Estate (% of Average Market Value)	0.43%	0.39%	0.42%	0.63%	0.79%
Administrative Expenses					
Administrative Expenses (% of Average Market Value)	\$ 4,890	\$ 4,614	\$ 5,191	\$ 7,202	\$ 6,820
Administrative Expenses (% of Average Market Value)	0.15%	0.13%	0.14%	0.18%	0.18%
Investment + Administrative Expenses					
Including Interest Expense From Leverage on Real Estate	0.58%	0.52%	0.56%	0.96%	1.13%
Excluding Interest Expense From Leverage on Real Estate	0.58%	0.52%	0.56%	0.81%	0.97%

APPENDIX G
GLOSSARY OF ACTUARIAL TERMINOLOGY

Glossary of Actuarial Terminology

AAL: See Actuarial (Accrued Liability)

Accrued Benefit: The amount of an individual's benefit (whether or not vested) as of a specified date, determined in accordance with the terms of a pension plan and based on compensation (if applicable) and service to that date.

Actuarial Accrued Liability: "Target assets" which would be on hand were the Association's current level of benefits to have been funded as a level percentage of pay each year from date of entry into the Association by all current members and interest at the current investment return assumption were credited each year. It also includes the actuarial present value of all retired members and beneficiaries future benefits.

Actuarial Asset Value: The value of Assets used by the actuary in the actuarial valuation. In order to reduce the impact of assets value fluctuation and to capture the long-term intrinsic value of the Association's assets, actuaries sometimes use smoothing methods. These methods usually reflect the current market value of assets in some manner.

Actuarial Assumptions: Those assumptions such as interest (investment return), salary increases, termination from service and mortality needed by the actuary to complete an actuarial valuation.

Actuarial Gain (Loss): The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

Actuarial Present Value: The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

- (a) adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.);
- (b) multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned; and
- (c) discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuary: A business mathematician trained in mathematics, risk analysis and finance. An actuary is assigned the task of determining the contribution required to maintain financial balance as to inflow and outflow from a retirement Association.

Assets: Underlying funds available to provide for the Association's benefits. It reflects the accumulation of all contributions and investment earnings.

Contribution to the Unfunded Actuarial Accrued Liability (UAAL): That annual contribution rate which, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution is calculated to remain as a level percentage of future active member payroll (including payroll of new members as they enter the Association) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments are scheduled to increase at the annual inflation rate.

Entry Age Normal Actuarial Funding Method: An actuarial method for pre-funding future retirement benefits. Under this method which the member contribution stream plus the employer contribution stream is determined as that level of percentage of payroll sufficient to finance benefits and employee contribution refunds for new entrant.

GASB: The Government Accounting Standards Board which promulgates financial reporting and disclosure requirements for governmental entities, including public retirement Associations.

GASB Statement No. 25: A set of disclosures promulgated by GASB to provide users of financial standards information as to the funding status of a public retirement Association. GASB No. 25 specifies the Pension Benefit Obligation as a standardized target level of the actuarial value of assets.

Investment Return Assumption: The average rate of investment earnings which is assumed will be earned by Association funds.

Normal Cost: That annual contribution rate which, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement benefits. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution rate is expressed as a level percentage of the member's compensation.

Pension Benefit Obligation: A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date.

UAAL: (See Unfunded Actuarial Accrued Liability).

Unfunded Actuarial Accrued Liability: Actuarial Accrued Liability minus the Actuarial Value of Assets.